Fig. 1—Charging side of the open-hearth furnace at Beloit. The three men at the right are German furnacemen: (right to left) Herr Tischer, melter; Herr Ingenieur Rekowski and Herr Pruefer

High Temperatures Obtained in New Furnace

By Dan M. Avey

PLACED in operation late in November, 1925, the first American furnace of the type invented by Edward Bosshardt, a Swiss engineer, has melted over 50 heats of steel at the time this article is written. This unusual style furnace, one of a pair built at the Beloit, Wis., plant of the Wanner Malleable Castings Co., Hammond, Ind., may be described simply as an open-hearth unit burning producer gas, evolved alternately from each end by two gas producers built into and a part of the furnace. A checker construction of refractory brick is employed to preheat the air entering the melting chamber. Two checker chambers are employed alternately absorbing and emitting heat as in common open-hearth practice.

The Bosshardt-type furnace differs from ordinary open-hearth furnaces in many details, but its chief claim to distinction, aside from any metallurgical accomplishments, is the exceptionally high temperatures obtained in the bath. The furnace was installed by the American Bosshardt Furnace Corp., New York, under a guarantee to raise the temperature of molten steel to 3600 degrees Fahr. if desired. In every day operation at the Beloit plant, the range of temperature of the molten metal is between 3500 and 3800 degrees. A detailed description of the furnace and the method of operation will explain how this is possible and also will answer the immediate question of how the roof refractories can withstand this high heat.

The Wanner installation consists of two melting furnaces, each of 3-ton capacity, although the cubical area of the hearth will permit an overcharge of a half ton or more. The furnaces are built side by side, with the charging end about 30 feet from the foundry wall. This part of the wall is adjacent to the stock yard and provision will be made to lift the material for the charge and the coal to their respective levels by locomotive crane. A space between the two furnaces provides room for the firing hoppers and for a stairway leading from the foundry floor to the charging platform. The furnaces with the chimney form a complete unit. The design and capacity of the chimney is important since natural

draft without any fan equipment draws air up through the coal burning grates. The brick-lined steel chimney is about 150 feet high and tapered from the bottom to the top. This design is said to assure steady velocity for the ascending hot gases which gradually cool and occupy less space during their upward flight. Wheel operated valves regulate the draft to the stack.

Each furnace with its checker chambers is constructed of brick held together against lateral stress by steel plates and I-beam buckstays which in turn are bolted together by tie rods. Above the furnace, where radiated heat brings these rods to a temperature of 400 degrees or more, crush blocks of wood are employed under the bolts. Silica brick are used in the portions of the checkers and parts exposed to high heat, while the arched roof is made of special shapes laid together without binding mortar and held in place by arch action. The side walls of silica brick are carried slightly below the slag line. The hearth is laid with magnesite brick, and covered with burned dolomite, sintered in place in layers.

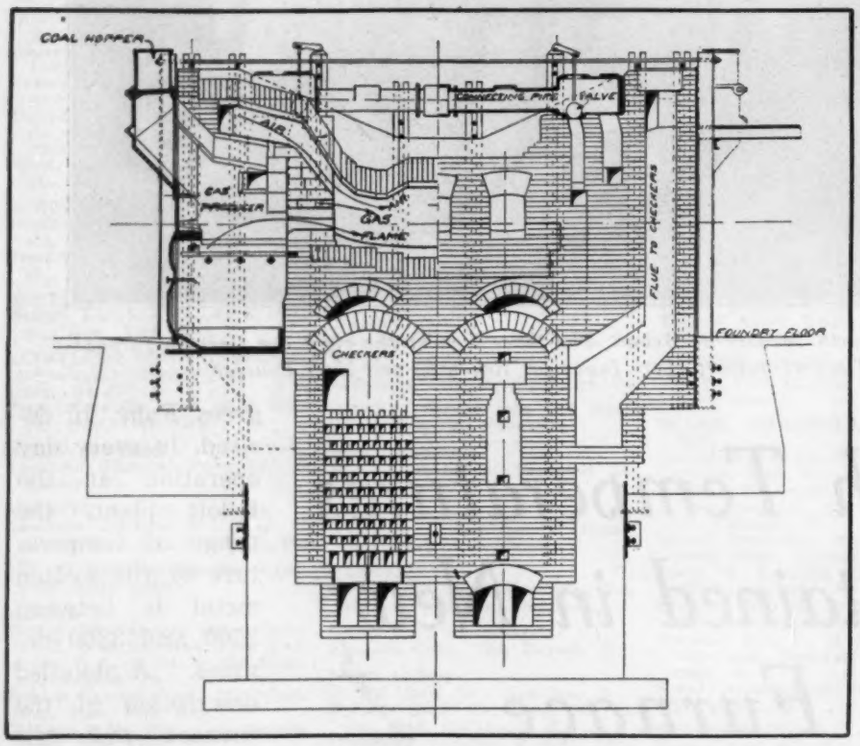


Fig. 2—Cross section of Bosshardt-type furnace

Gas Producers Integral

Two gas producers built into the two sides of each furnace are constructed of steel plates and castings and communicate at the top with a charging hopper holding 100 pounds of coal which may be dropped upon the grates when the bottom door is opened. The present grates are plain square steel bars similar to those employed in the earlier furnaces installed and operated in Germany. Later these will be replaced by a rocking type grate. A water filled ash pit with cleanout door is built beneath the grates and serves as a water seal during the period the firing chamber is converted into a gas producer.

These gas producers are operated in turn, alternately. When the coal is dropped on the fire the bottom draft door is closed and the coal starts to coke, evolving hydrocarbon gases which are carried by a lateral port to cast iron pipes extending to the opposite side of the furnace. At the other side of the furnace these gases mix with gas from the opposite side and then the mixture enters the melting chamber in a manner that will be explained. During the time one fire has been coking and producing gas, the other has been burning briskly, the incandescent coke being supplied with free air through a door beneath the grates.

The hot flame is directed across the melting chamber and close over the hearth as shown by the lower arrow at the left in Fig. 2. Meanwhile the hydrocarbon gas coming from the opposite firebox in the manner mentioned is mixed with the excess rising from the active firing side of the furnace. These hydrocarbon gases from the gas producers are driven into the furnace through ports placed above those admitting the hot flame from the coke fire. This action is shown by the arrow marked *gas* at the left of Fig. 2. Heated air from the checkers shown beneath the furnace at the left, is drawn upward through the flue at the extreme left and then downward at an angle of 50 degrees into the melting chamber. This downward rush of hot air immediately ignites the hydrocarbon gases and also depresses the flame down upon the metal bath and with a rolling, swirling motion across the hearth to the opposite side. Here they leave a higher port and enter the outlet downward through the flue to the right hand checker and thence to the chimney.

Reversing Operation

At the end of each twenty minute period the operation is reversed. As the left firing chamber has been considered active in the preceding description, this reversal is accomplished as follows: The bottom draft door below the firing grate at the left is closed and that at the right is opened. The valve admitting the hydrocarbon gases into the melting chamber at the left side is opened and the one at the other end closed permitting the gas to enter the cast iron transverse pipe and to travel across to the opposite side. The flue valve between the left checker chamber and the stack is opened and that at the right is closed by a partial turn of the wheel. The burning gases and hot blast then travel across the hearth from right to left.

Immunity of the roof from the extremely high temperatures encountered is due to the method of admitting the air from the checkers and also to the roof construction. The roof is built with a flat transverse arch with a dip at either side similar to that encountered adjacent to the flue in a camel-back type of air furnace. The entering air is directed downward, so that a blanket of air is formed over the flame holding the high temperature gases down against the metal and affording insulation between them and the roof. The roof, about 12 inches thick, is laid without cementing the joints and a measure of protection is afforded by the action of radiation and convection. Standing on a runway laid across the top of the roof, the travel of the flame across the furnace may be seen plainly and yet no evidence of overheating the roof brick is observed.

The silica brick used in the roof were made by the General Refractories Corp., Philadelphia. Although commonly recommended for service

Fig. 3—Above—Housings, Differential Parts and Small Automobile Sundries Which Usually Are Forged, Have Been Made in Steel at Beloit

Fig. 4—Below—Hollow Locomotive Superheater Designed To Resist High Temperature and Pressure

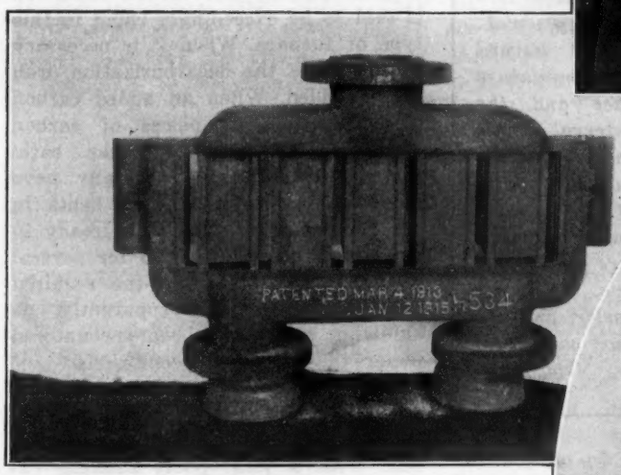


Fig. 5—Below—Two-Inch Well-Point Cast of Steel in the Same Type of Mold Employed for Malleable Castings of the Same Pattern

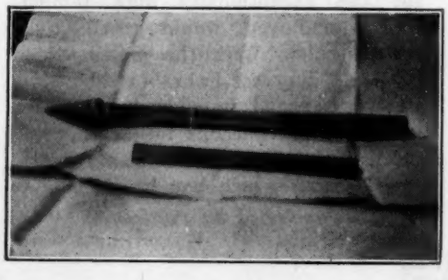
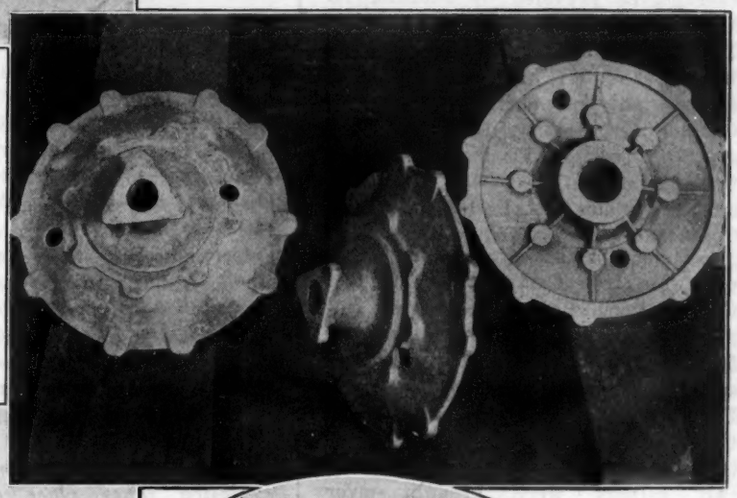


Fig. 6—Below—Wheel Hubs Poured from Low-Carbon Steel at a Temperature in Excess of 3600 Degrees Fahr.



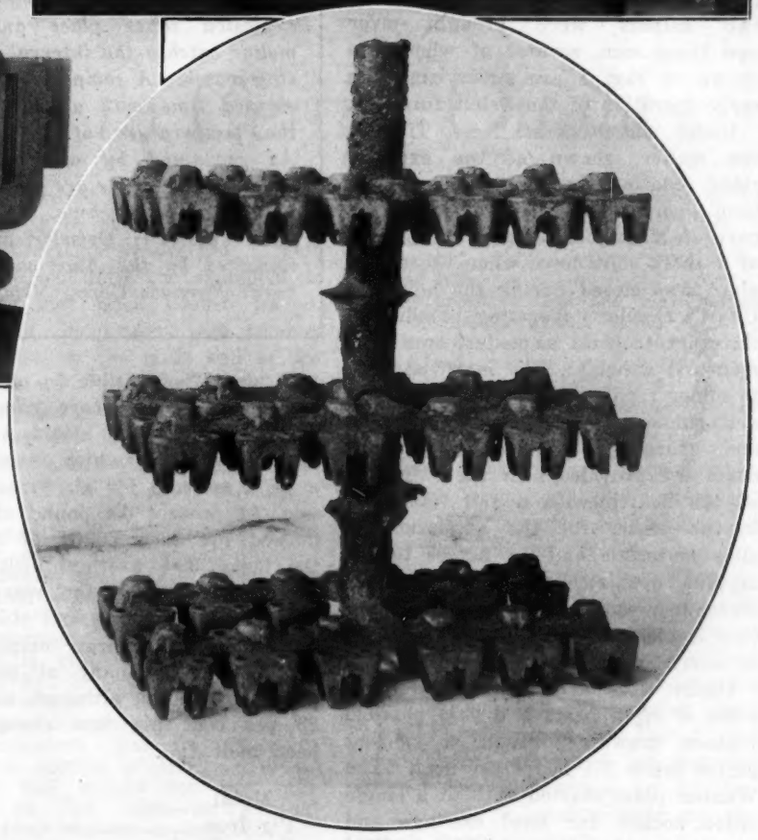


Fig. 7—Above—Gate of Cable Clips, Poured Three High with 24 Castings on a Gate Yielding 72 Perfect Castings From a Single Head—Note the Freedom from Burnt-on Sand and Scabs

under temperatures but little in excess of 3200 degrees Fahr. they show no evidence of chipping or spalling and in every way look to be as intact as when laid in the roof. German refractories, which, according to statements of the workmen brought over from that country to install the furnaces, are inferior to the American product have withstood 375 heats before it was necessary even to make patches or minor repairs on the roof.

Before describing the results obtained from the Beloit furnace, a short history of the introduction into America of the Bosshardt type of furnace, as provided by Sterling H. Bunnell, consulting engineer, New York, may prove interesting. Mr. Bunnell and W. L. Willis, formerly foundry superintendent of the Gould Coupler Co., Depew, N. Y., investigated the first installation of this type furnace made by Edwin Bosshardt at the plant of Berliner Actien-Gesellschaft fur Eisengiesserei und Maschinenfabrikation, or Berlin Company for Iron Casting and Machine Construction, Berlin, Germany. Impressed with the possibilities of the furnace, American rights were secured and the American Bosshardt Furnace Corp., New York, was formed to introduce the furnace in this country. A German engineer, melter and two helpers were brought over and these men, several of whom are shown in Fig. 1 are supervising the early operation of the Beloit furnaces.

Under direction of Herr Tischer, the melter, shown at the extreme right, one of the two furnaces has been operated daily since the latter part of November with the exception of a short shut down when the entire plant was closed during the holidays. Under regular operating conditions the crew includes a melter, two firemen and a helper. The latter attends to minor repairs, makes up the breast and runners and assists in tapping and charging. Two main charging doors are provided near the two ends of the hearth with a full size door in the center for the admission of alloy materials and for access to the tapping opening opposite. With all three men working, a charge of three tons is placed in the furnace by hand in about 15 minutes.

Under a 24-hour schedule a maximum of eight heats a day is possible without crowding, giving a melting period below 2½ hours per heat. The Wanner plant started without a single order booked for steel castings and has developed a demand which is filled by two heats per day.

A grade of Kentucky bituminous coal, averaging about 13,500 b. t. u. is employed as fuel. This is a free burning, straight mine run coal employed without screening or sorting. The main requirement of a fuel for this furnace is that it shall coke without welding into a solid mass on the grates.

At present the fuel is brought by elevator to a floor on the level with the tops of the furnaces and then wheeled to steel bins at the sides of the 100-pound feeding hoppers. The fireman fills the hopper and then drops the bottom at the proper time. On the reduced schedule of operation the fuel efficiency has not been as high as it is possible to obtain. According to the furnace company, it will be possible to attain a melting ratio of 5 to 1, which is considered a good average for air furnace practice. At present 0.4 pound of coal is burned for each pound of metal in the ladle. The average melting cost is about $6 to $8 a ton over the cost of the raw materials.

Listen to Temperature

ONE typically German practice introduced by the melters and furnace men employed to put in service the first Bosshardt type of steel melting furnace at the Wanner Malleable Casting Co., Beloit, Wis., is the determination of temperature by small bombs. These are tiny refractory cylinders containing in the center a limited amount of explosive substance. The melter throws one of these bombs into the bath and clicks a stop watch. When the metal has burned through to the center a miniature explosion takes place and the melter catches the interval on his stop watch. A comparison of the elapsed time with a chart gives the temperature of the metal. As explained by an American melter these bombs are pyrometric instead of pyrotechnic. They are made by Dr. H. Geissler, and are imported by the American Bosshardt Furnace Corp., New York.

An average charge employed by the Wanner company at present is made as follows, although as low as 25 per cent pig iron charges have been melted:

Metal	Weight Pounds
Pig Iron	1750
Scrap Steel	1250
Sprue	2000
Ferrosilicon	60
Ferromanganese	50
Total	5110

The ferrosilicon used runs 50 per cent silicon, and is added to the metal in the ladle. The 80 per cent ferromanganese is placed inside the central charging door a few minutes to become heated before it is shoved into the bath about 12 minutes before tapping. About 8 ounces of aluminum per ton is thrown in the ladle for each ton of metal.

A basic pig iron for the mixtures analyzes as follows:

	Per Cent
Carbon	3.95
Silicon	0.90
Manganese	1.25
Sulphur	0.048
Phosphorus	0.22

The scrap consists of miscellaneous steel with a preponderance of steel rails. The analyses of these materials are practically as follows:

	Rails Per cent	Misc. Per cent
Carbon	0.46	0.25
Silicon	0.09	0.25
Manganese	0.70	0.50
Sulphur	0.06	0.04
Phosphorus	0.04	0.04

Present product, a low carbon steel, runs comparatively high in silicon and manganese. The carbon reduction is said to be exceedingly rapid in this type of furnace. When it is necessary to accelerate the decarburization, iron ore is added. When an added carbon content is sought pieces of carbon electrodes are added to the bath. Foundry conditions occasionally have made it necessary to hold heats in the furnace after they were ready to tap. Heats have been held for several hours merely by adding the required amount of carbon. Apparently no oxidizing evils have been encountered under these extreme conditions.

The low carbon steel produced at present develops a tensile strength in excess of 55,000 pounds per square inch with a yield point running exceptionally high. The analyses of two typical heats follow:

	Charge No. 35 Per cent	Charge No. 38 Per cent
Carbon	0.16	0.12
Silicon	0.24	0.46
Manganese	0.47	0.60
Phosphorus	0.011	0.019
Sulphur	0.031	0.051

Low Carbons Favored

This low carbon steel, were it not for the exceptionally high temperatures employed, would prove sticky and sluggish. With the pouring heat of 3500 degrees Fahr. or above, it has been found possible to pour extremely light sections either in green or dry sand molds. The most remarkable casting which has been made to

(*Concluded on Page* 338)

Steel Fabricators Engage in Broader Activities

According to an announcement just made by Charles F. Abbott, executive director, the American Institute of Steel Construction, by action of its board of directors, has decided to extend its activities. The new work will include publication of a sales manual as recommended in the report of the committee on improvement in selling methods submitted at the annual convention; organization of a corps of field engineers and establishment of a department of architectural relations.

A. T. North, former associate editor of *American Architect*, has been engaged to edit and publish the sales manual and to take charge of the department of architectural relations. The organization of this department will enable the institute to make contacts and develop relations with architects, architectural schools and students, general contractors and owners and also to co-operate with the engineering department.

Three field engineers will be added to the institute's staff later. They will work with architects, engineers, owners, bankers and others interested in building construction to promote the application of structural steel.

In order to provide for these expanded activities, the institute has secured larger office facilities in the new Murray Hill building, 285 Madison avenue, New York, which will be occupied about Feb. 20.

Will Build Plant for Potash Recovery

Work on the construction of a plant for reclaiming potash from its blast furnace gas has been commenced at Pueblo, Col., by the Colorado Fuel & Iron Co. The plant, which will function in connection with the company's two 500-ton blast furnaces, is expected to be in operation in a few months. It is being built under license, from the Research Corp., 25 West Forty-third street, New York, of the Cottrell patents for electrical precipitation. Prior to undertaking construction of the new plant the Colorado company obtained successful results with a small experimental plant of the same character. Plans also are being executed for the construction of a similar potash reclamation plant in connection with blast furnaces in Alabama.

It is estimated that sufficient potash can be reclaimed from pig iron and cement producing industries in the United States virtually to meet the country's requirements. At the present time about ten cement plants are employing the Cottrell electrical precipitation process for reclaiming potash.

Company 110 Years Old

The Townsend Co., New Brighton, Pa., has sent out announcements of its 110th anniversary, Jan. 1 of this year, believed to be the oldest wire mill in America. The company was founded in 1816 as R. Townsend & Co., in 1864 became W. P. Townsend, & Co., in 1894 C. C. & E. P. Townsend in 1905 C. C. & E. P. Townsend Co. and in 1916 the Townsend Co. The company manufactures rivets, nails, wire and wire products. R. T. Townsend is president and general manager, J. M. Townsend vice president and V. L. Bradford secretary and treasurer.

The $200,000 estate of W. A. Schniglau, who had been secretary and treasurer of the former Lassig Bridge & Iron Works, Chicago, was left by him to charity.

Branding Sheets to Certify Quality

GALVANIZED steel sheets certified as to quality are now available through the action of the Sheet Steel Trade Extension committee in setting up a standard and issuing licenses for the use of its master brand to those manufacturers meeting and agreeing to maintain the standard. Three licenses already have been granted under the plan, which became effective Feb. 1, and others are expected to follow shortly.

The intention of the committee, on which more than 90 per cent of the independent sheet capacity of the country is represented, is to give its master brand the same relationship to sheets that sterling now bears to silver. So far the committee has acted on galvanized sheets for outdoor work when subject only to moderate forming operations, the extra heavy coating specified requiring care, but ultimately the idea will apply to coated sheets for severe forming operations, blue, black and full finished.

The standard now in effect for galvanized sheets embraces the salient points of both base metal and coating. Manufacturers desiring to identify their product by the master brand are required to submit samples and give information concerning their practice. Not until the standard is completely met is a license issued. A staff of inspectors will conduct periodic tests at the mills and in the field to insure maintenance of the quality implied by the master brand.

Following are the points of value the committee believes the imprint of its master brand means to buyers:

It guarantees that the base metal used by each mill for its master brand sheets shall fully meet the specification standards of the Sheet Steel Trade Extension committee.

It guarantees that the sheet on which it is stamped is not lighter than full No. 28 gage, thus insuring sufficient weight of base metal and coating to stand the test of time.

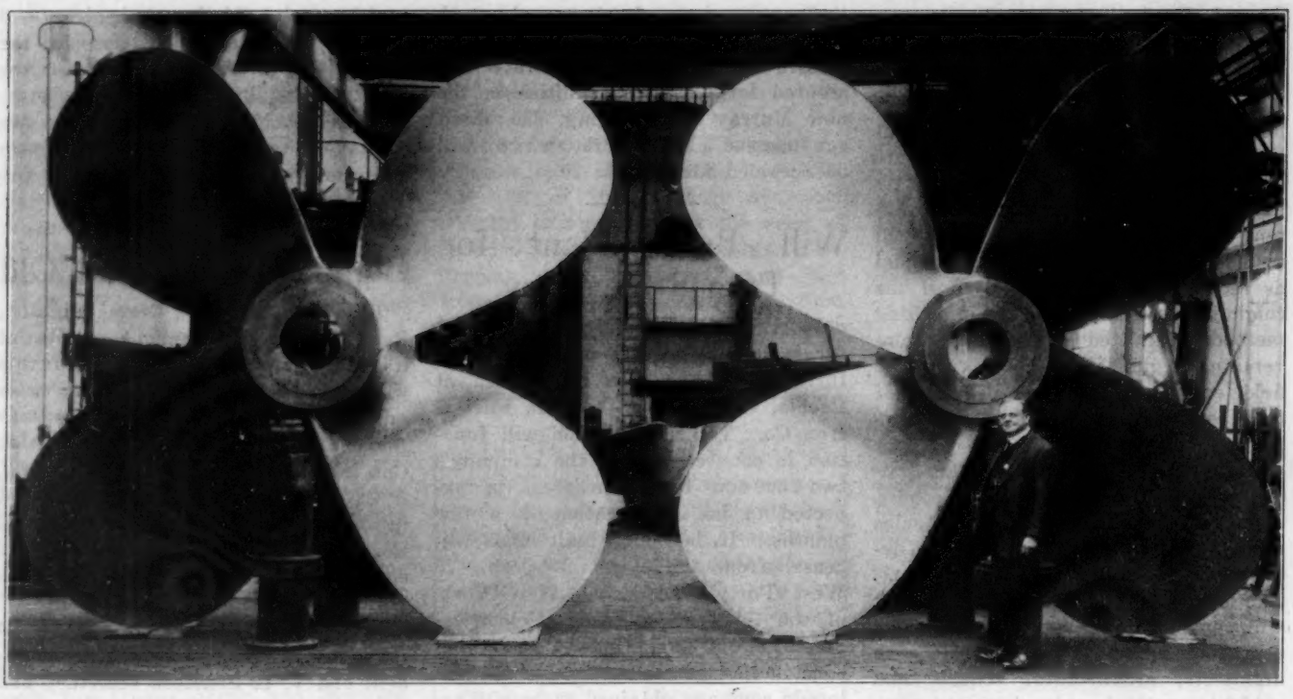
It guarantees that the sheet to which it is applied is strictly a prime sheet of full weight for the gage stamped on the sheet—an assured freedom from blemish or imperfection. Any application of the master brand to second sheets will be met by prompt and vigorous legal action.

It guarantees that the heavier coatings prescribed by the committee for master brand sheets shall be applied with the greatest care to insure the utmost service value. These 15 to 30 per cent heavier coatings, as compared with the average commercial sheet on the market today, assure a greatly increased life.

It guarantees that the high standards of master brand sheets shall be maintained that all such sheets shall be subject to a system of inspection and laboratory tests, carried on by the committee's inspectors, both in the mills and the markets.

Greater value to consumers at practically no advance in cost will stimulate sales, engender good will and place the industry on a justifiably more remunerative base, in the opinion of the committee. Its plan is held out as 'the death knell to starved gages, skinned coatings and unfair, cut-throat competition by seconds with prime sheets." The master brand has been registered in the United States patent office and 'its integrity against forgery, misuse or counterfeiting will be maintainned in the United States courts."

According to the committee, sheets of known and guaranteed quality will appeal especially to manufacturers using them, architects specifying them, contractors, dealers, and home owners.



The Blades of These Massive Propellers Were Finished With Abrasive Cloth

Abrasives Finish Large Propellers

IN THE making of ship propellers, which generally are manganese bronze, considerable labor is involved in finishing the driving sides of the blades, for if they are rough unnecessary power is expended to overcome the resistance set up by friction. The accompanying illustration shows two large propellers recently made by J. Stone & Co., Ltd., Deptford, London, England, for a giant turbine-driven transatlantic liner. The size of the propellers can be judged by comparing them with the man at the right in the illustration. These propellers were machine planed accurately to pitch on the driving sides of the blades, while the all over surface finish also was exceptionally good. The fine finish was brought about by the use of pneumatic chipping hammers, followed by hand filing. The final finish was obtained with abrasive cloth of various grades of which a considerable quantity was used. While an operation of this kind involves considerable expense for labor and abrasive material, it is an economical one in the long run as propellers finished in this manner can be depended upon to deliver as near maximum power as possible.

Platinum is the only metal upon which no single acid has an effect. The only acids which will touch it are nitric and hydrochloric acids when mixed together. Platinum wire has been drawn so fine that a mile of it would not weigh over a gram, while seven ounces of it would extend from New York to London.

New Thermometer Reads Over 1800° Fahr.

A thermometer similar to the familiar mercury-in-glass instrument but capable of registering temperatures over 1800 degrees Fahr. has been developed in the Thomson research laboratory of the General Electric Co. at Lynn, Mass. German scientists attained temperatures of 1300 degrees Fahr. with such an instrument, using clear, fused quartz in the bulb and stem, instead of glass, and the rare metal gallium in place of mercury, which would boil and cause the thermometer to explode at such a temperature.

A method of commercially producing this clear, fused quartz was developed in the Thomson laboratory, as well as a means of producing pure gallium. One advantage of the latter metal, which is similar to mercury in appearance but lighter in weight, is that it melts at a temperature of 100 degrees Fahr. but can be cooled to about 40 degrees before solidification. Gallium boils at about 3600 degrees and must be used under pressure.

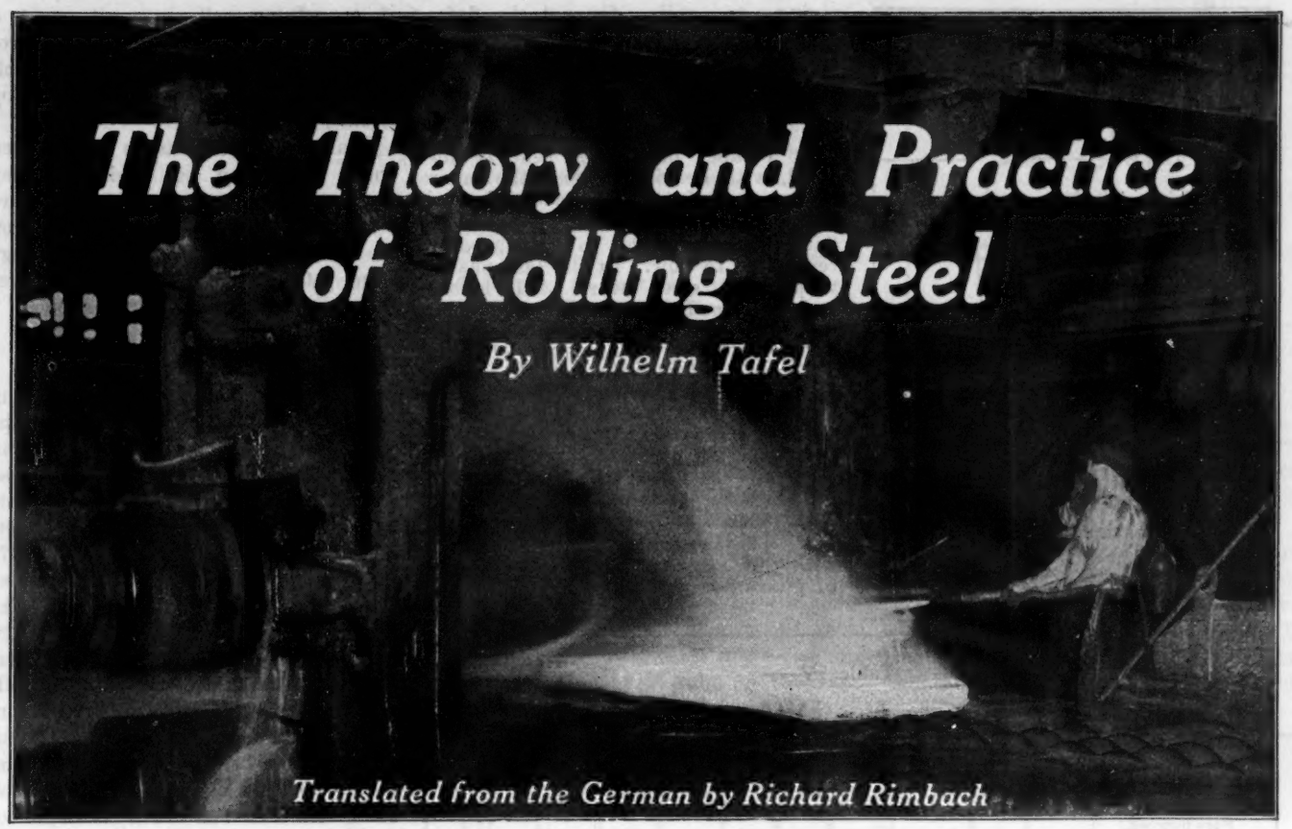
Further experimental work in the direction of etching and marking quartz brought forth a composition of sand and copper oxide to produce grayish-black marks. This substance not only withstands intense heat but also resists most chemical reagents.

A number of these gallium-in-quartz thermometers have been used with satisfactory results in laboratory work, although as yet the production has been concerned almost exclusively with scientific investigation.

Seek Advice on Specifying Castings By Weight

Opinions are being sought by W. Chattin Wetherill, director of metals utilization of the department of commerce, in regard to steps that are contemplated in promoting the campaign to obtain the showing of weights of castings on blue prints sent to the foundries for estimate.

The Steel Foundry Society of America and the American Malleable Castings association are engaged in this campaign, and have solicited the aid of the department of commerce in stimulating this activity, in view of the fact that the question of industrial waste is involved and that to make the campaign effective it should be national in its scope.



The Theory and Practice of Rolling Steel

By Wilhelm Tafel

Translated from the German by Richard Rimbach

Chapter IV—Continued

IN DEVELOPING the roll drawing outer collars are not drawn until the space remaining between them can be divided. We then have a roll drawing similar to Fig. 72, which for simplicity is drawn as a simple two-high, probably a reversing mill.

A set of three-high rolls with dead passes is developed without anything additional, if a third roll with a diameter of 23.228 inches is placed above. In this case the roll drawing in Fig. 72 simply repeats itself. Both lie above one another, but the distance, 23.622 inches, between the axes is not generally made full size. The roll turner does not take the diameters from the drawing but from the dimensions as entered. In the case of the body length the actual size purposely is chosen, so that the roll turner can transfer the widths directly from the drawing, which he tacks on a board and lays on the lathe directly in front of the roll. This can be done by chalking the body and scribing with the steel scribe.

If the dead passes in the three-high mill are used, twice as many profiles can be rolled, such as 3.937, 3.543, 3.150 and 2.757-inch flats, if the body is lengthened slightly. The division would then be as follows:

Finished shape	3.937	3.543	3.150	2.757
Pass Nos. 4 and 5	4.370	3.976	3.583	3.189
Pass Nos. 2 and 3	4.252	3.858	3.465	3.071
Pass No. 1	4.055	3.661	3.268	.....
	12.677	11.495	10.316	6.260

Total five passes	40.748
Nine inner collars at 1.969 inches.....	17.721
Two outer collars at 3.150 and 3.346....	6.496
Total, inches	64.964

The determination of the body length only is free in a few cases.

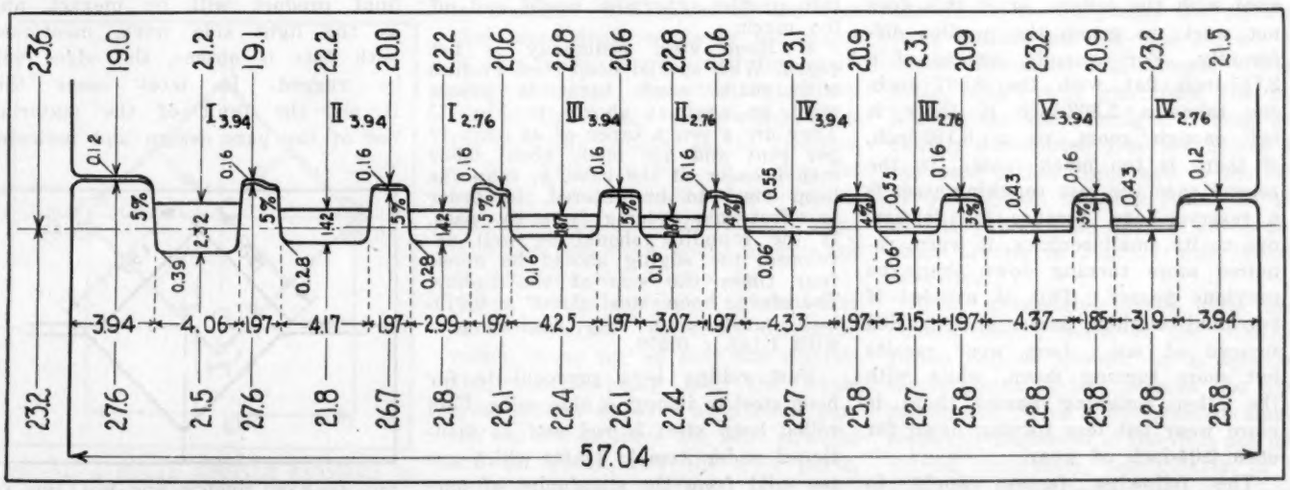


FIG. 72—SCHEME FOR DEVELOPING A ROLL DRAWING FOR A SET OF TWO-HIGH ROLLS OR FOR A REVERSING MILL

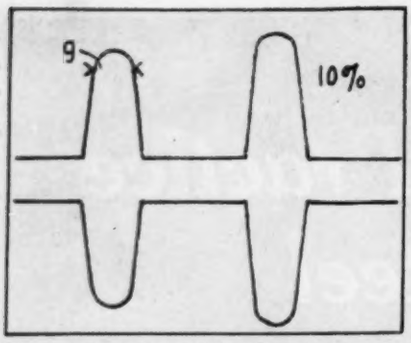


FIG. 73—TURNED-IN EDGING PASSES FOR HOOP STEEL

When new trains are to be built the best procedure to follow is not to choose the body length arbitrarily and to leave it to the roll designer to get his passes inside the set limits as best he can but after the rolling program has been decided, to choose an agreeable standard body length. The profiles added later must be laid out on a given roll length. Example 1 then should be followed, that is, to balance with the collars, or if this does not work, to group the profiles differently. For example, instead of a 2.757-inch flat with the 3.937 inch, one takes a 2.362-inch if there is not enough room, or a 3.150-inch, if there is too much room. In the second case the last roughing pass is a reserve pass, because the former, due to its small conicity, if worn, requires more turning down than the previous passes. This is avoided if two final roughing passes are provided instead of one. Less wear results but more turning down, while with the other roughing passes there is more wear but less turning down for each 0.04-inch of wear.

The following factors apply to hoop steel and differ with those applying to rolls for steel flats:

1. The smaller thicknesses require less stiffness of the stock; the taper of the pass must therefore be larger to facilitate freeing the stock from the roll. With thicknesses up to 0.079 inch a taper of 10 per cent is advised, with heavier sections the taper ranges from 5 to 8 per cent.

2. Hoop steel spreads less than flats, probably due to the greater resistance to flow. In the last passes with hoop steel over 1.181 inches wide it is sufficient to allow a spread ranging from 0.0098 to 0.0197 inch; with narrower widths from 0.039 to 0.079 inch with the first pass. Broad skelp 7.874 inches and over should be given no draft in the later passes if good corners are desired. In the first roughing passes a spread ranging from 0.05 to 0.1 of the draft is sufficient, with small roll diameters less, with large diameters more.

3. The latest draft of 0.0295 inch with thin sections, which is necessary to guarantee straight delivery of the hoop steel, results in drafts in the last roughing passes and in the polishing roll of 30 to 45 per cent which are considerably higher than with flats. This is desirable because the thin profiles otherwise would cool off too much.

4. Hoop steel ordinarily is not edged. With special hoop steel profiles with round edges turned-in passes must be used as shown in Fig. 73 They are given a taper of at least 10 per cent and are made about 0.039 inch broader at the base, *g*, than the hoop steel to be entered, in order to effect easy freeing from the pass. If the rounding should be well developed, the edging should be about four times the size of the radius. Therefore, hoop steel 0.984 x 0.079-inch must enter the edging pass with 1.142 x 0.079.

Fast rolling is a prerequisite for hoop steel to import a blue color. Cold rolled hoop steel is red and as mentioned under item 3, drafts which are too mild from the standpoint of percentage also are detrimental. Instead of an edging roll, in most cases a leader or second polishing roll is provided. Finally, a chilled ground polishing roll is required for a clean hoop steel.

Draft stages similar to those given under flats, can be used for hoop steel. A few examples for steel are given in Table IV. For wrought iron the spreads in all passes should range from 0.0098 to 0.0197 inch to get sharp corners.

Stock Spreads Unhindered

With the leader and polishing passes the spread is larger, as the stock is colder and therefore can spread unhindered. With a hoop steel 0.394 to 0.591 inch the spread amounts to 0.079 inch, from 0.630 to 0.984 inch to 0.059 inch, from 1.024 to 1.378 inches to 0.039 inch; and with wider stock from 0.030 to 0.039 inch. The exact width is regulated by the draft. The thinness of the stock gives the overdraft in the material between the rolls little chance to be relieved. It therefore is better to make the overdraft about 0.079 to 0.197 inch for the roughing passes and to use the polishing roll as a friction roll. An example of draft stages for hoop steel follows:

HOOP STEEL 0.787 X 0.049″

Hot profile (0.787 x 1.013) x 0.049 =	0.797 x 0.049″
Leader profile	0.738 x 0.079″
No. 5 roughing pass	0.879 x 0.128″
No. 4 roughing pass	0.659 x 0.187″
No. 3 roughing pass	0.620 x 0.285″

Into the pass 0.620 x 0.285, a 0.511 to 0.571 inch square will enter satisfactorily, therefore three roughing passes will be sufficient. Frequently only two are used. One then receives from the 0.511 inch square in the first roughing pass a draft which is too high. A smaller square, which does not fill completely must be entered into the first roughing pass. Nonfilling passes always are unequal in width, and this inequality continues to the finishing pass. The final product will be inexact and as the light side work, mentioned with flats is absent, the edges will be ragged. In most cases this is not the fault of the material, but of the pass design and indicates

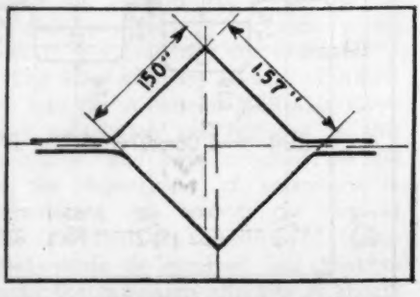


FIG. 74—PASS DESIGN FOR ROLLING APPROXIMATELY SQUARE PROFILES

Table IV

Pass Layouts for Different Sizes of Hoop Steel

HOOP STEEL 0.787 TO 1.181 INCHES X 0.039 TO 0.098-INCH

Pass number	1	2	3	4	5	6	7	8	9	10	11
Draft stage	0	.....	0.059	.....	0.157	.....	0.354	.....	.....	.....	.....
Pass spread	....	0.020	.....	0.030	.....	0.039	.....	.....	.....	.....	.....
Taper %	....	10	.....	10	.....	10	.....	.....	.....	.....	.....
Bevel	....	.....	0.049	.....	0.059	.....	0.118	.....	.....	.....	.....

HOOP STEEL 1.575 TO 1.969 INCHES X 0.059 TO 0.098-INCH

Pass number	1	2	3	4	5	6	7	8	9	10	11
Draft stage	0	.....	0.079	.....	0.197	.....	0.394	.....	0.866	.....	.....
Pass spread	....	0.020	.....	0.030	.....	0.039	.....	0.059	.....	.....	.....
Taper %	10	.....	10	.....	10	.....	10	.....	10	.....	.....
Bevel	....	.....	0.049	.....	0.098	.....	0.118	.....	0.157	.....	.....

HOOP STEEL 3.150 TO 4.724 INCHES X 0.098 TO 0.197-INCH

Pass number	1	2	3	4	5	6	7	8	9	10	11
Draft stage	0	.....	0.098	.....	0.236	.....	0.512	.....	1.024	.....	1.969
Pass spread	....	0.01-0.02	.....	0.02-0.03	.....	0.039	.....	0.049	.....	0.069	.....
Taper %	10	.....	10	.....	10	.....	10	.....	10	.....	10
Bevel	....	.....	0.039	.....	0.079	.....	0.118	.....	0.157	.....	0.276

that too large spreads have been chosen.

With flats, the rolling becomes more difficult, as the height approaches the width or in other words, as the profile becomes thicker. This is changed when the height equals the width or when the rectangle becomes a square. In this case the neutral line is not placed parallel to the sides of the square, but laid in its diagonal.

With this method of laying out passes, approximately square flat profiles such as 1.575 x 1.496 inches, 0.787 x 0.709 inch etc., can be rolled if the two rolls are moved sidewise in comparison with one another. In Fig. 74 the lower roll was moved slightly to the right. This method presents certain difficulties, because as with a cross section lying flat, whose height in relation to its width is large the rod may develop a tendency to twist itself like a screw. Different conditions exist with a square profile. Suppose the dimensions of the profile to be entered and the setting of the rolls is exact. If the draft is slight the mentioned tendency ceases because the stock receives a different working in the individual parts of the cross section in two ways: First.—Imagine the passes I to III in Fig. 76 of a roll exactly square and that the angle α equals 90 degrees. The passes are stepped by 0.039 inch and their sides measure 1.260, 1.220, 1.181 inches. The stock is reduced by passes I, II and III in order, being turned 90 degrees between each pass. As the square sides increase from left to right the diagonal, b_1, therefore is larger than h_2; and h_1 also is larger than b_2. The case exists, therefore, of a broad profile being entered into a narrower pass. The result is, that at the open places a a the steel squeezes out or bulges as shown in Fig. 75. The bulges of pass II come on top in pass III and so increase the draft, while in the horizontal direction a squeezing out of the material again takes place. In the last pass the stock is entered twice but if this should cause the stock to come out on the wrong side of the train, it is entered three times, being turned 90 degrees between each pass. The bulges caused by the next to the last or third last pass are rolled out in this way, so that the final product is free from these defects and nearly square in cross section.

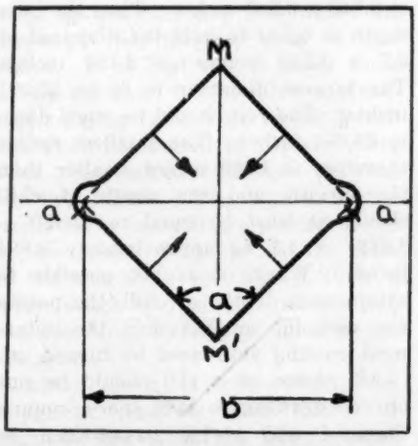


FIG. 75—A BROAD PROFILE ENTERED INTO A NARROW PASS RESULTS IN BULGES

According to the foregoing the stock is pressed more in the perpendicular direction and less in the horizontal and, therefore, is elongated. This explains why with square passes the side parts at a a, which have less draft, are pulled from the middle parts to the right and left of the line mm' and also why they shrink. The shrinkage is represented by the diagonal b in Fig. 75. The result must be that the angle α after leaving the rolls is smaller than in the pass. Therefore, to weaken the formation of the bulge, the angle α was made somewhat larger than 90 degrees and the diagonal b also larger than the vertical in the direction mm'. The effect of this change is that the shrinkage of the horizontal diagonal is increased by reason of the fact that more draft exists in the center of the following pass and less draft along the sides. The roof shaped outline of the square pass, which holds the material together in the direction of the arrows in Fig. 75, makes the entering of a broader pass into a narrower pass possible. Without these influences the stock would squeeze out at the sides and form a fin.

Due to the shrinkage of the outer parts internal stresses originate, which, in so far as they are distributed symmetrically over the whole cross section as with hoop steel, permit the rod to leave the rolls straight and to spread over the edge parts, which hold back.

Second.—A similar effect is caused

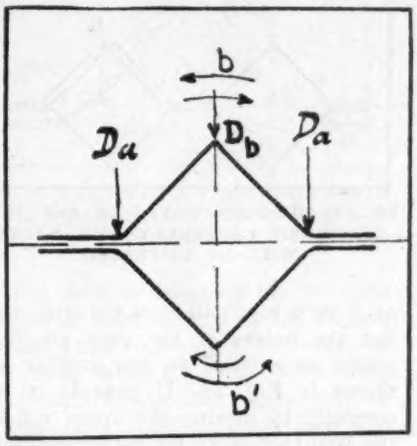


FIG. 77—LARGE WORKING DIAMETERS THROW THE SURFACE PARTS AHEAD

by the difference in the working diameter. In Fig. 77, D_a is larger than D_b. The larger diameters, D_a, throw the surface parts ahead while the smaller diameters, D_b, hold the parts in the middle at the line bb' back.

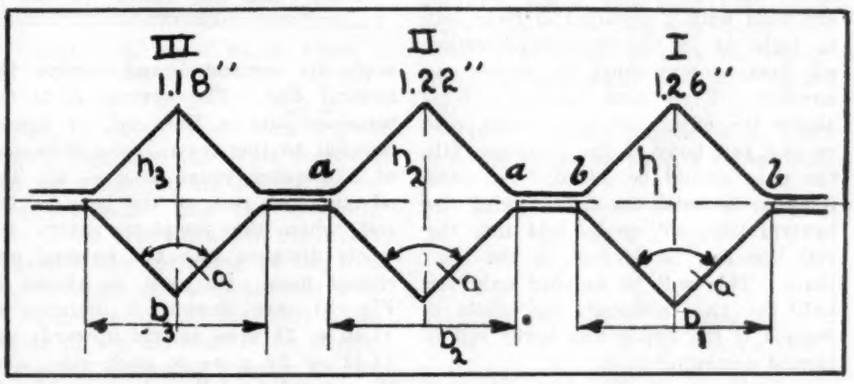


FIG. 76—PROCEDURE FOR STEPPING UP PASSES DESIGNED TO ROLL SQUARES

Internal stresses must originate, because the different parts of the cross section cannot possibly assume different velocities. Whether those under the first source predominate or not, depends on the size of the roll diameter, the draft and the depth of the pass. In all events the stresses from sources one and two will not be equal. Resultant final stresses will remain, which will guarantee the rod leaving the rolls straight if they are equally distributed over the halves of the pass to the right and to the left of bb'. If not, twisting forces in the direction indicated by the inner and outer arrows in Fig. 77 will become effective.

With accurately turned rolls and equally heated material, the twisting forces can be avoided by a sidewise displacement of this pass or the preceding one. This is not possible under some circumstances if the rolls are not turned accurately, particularly of a pass and the following one of a two-high mill or the first and third passes

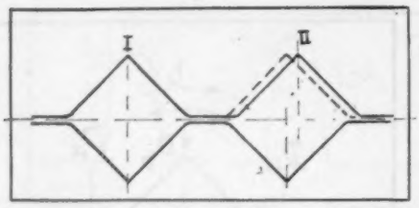


FIG. 78—IF SQUARE PASSES ARE NOT MACHINED CAREFULLY THE HALVES WILL BE DISPLACED

of a three high mill lie on the same roll but the halves of the pass are displaced in relation to one another as shown in Fig. 78. If pass II is set correctly by moving the upper roll to the left, that is, to the dotted position, pass I will be wrong and vice versa. Exact machining therefore is extremely important for square rolls.

Double Templates Used

Laying the passes exactly above one another can be made easier by using double templates, which always fit into two passes at the same time as shown in Fig. 79. If double templates are used with a square roll from left to right or in the opposite direction all pass centers must lie above one another. Even with ordinary templates the offsets at a a, which rest on the roll body if the template fills the pass should be added. To make it easier to finish the roll drawing the neutral line, bb', to be laid into the roll line can be scribed on the template. This will be finished only for half the pass although the whole is formed if the upper and lower roll is turned according to it.

According to the foregoing, the vertical diagonal must be smaller than the horizontal. The amount of the difference is chosen either by assuming a definite angle α of 90.5 to 91.5 degrees. Brovot recommends 91 degrees for medium size squares, 90 degrees 40 minutes for large, 91 degrees 20 minutes for small. Or a definite relation for the lengths of the diagonals may be chosen. Geuze gives for the vertical diagonal $d_v = 1.40\ a_w$ and for the horizontal $d_h = 1.42\ a_w$, in which a_w, denotes the side of the square measured hot. Brovot recommends a relation of horizontal to vertical diagonal of 1.0117 for large square profiles, 1.0176 for medium and 1.0235 for small according to the formula $d_h \div d_v$. Generally it suffices for all profiles to simply choose α as equaling 91 degrees or $d_v = 1.40\ a_w$, and, $d_h = 1.42\ a_w$.

When the angle or the relation of the lengths is determined a template of the angle 91 degrees, that is 45.5 degrees is used to lay out an angle of 45.5 degrees to the right and left of the vertical diagonal YY' in Fig. 80 and then the side of the square increased by the amount, a_w due to being hot is measured off. The ends of the legs,

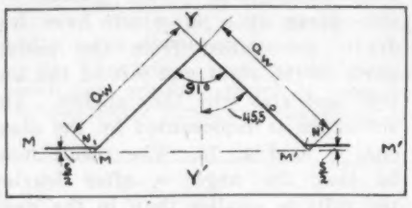


FIG. 80—CONSTRUCTION OF A FINISHING PASS FROM THE ANGLE AT THE POINT

mm', are connected and receive the neutral line. The spring, s, is determined and a line, nn', is drawn parallel to the neutral line then and at a distance equal to $s \div 2$. The offsets must rest on the body of the roll when the template enters the whole distance into the finished machined pass. Or axes, as shown in Fig. 81, are drawn; a distance of $(1.40 \div 2) \times a_w$ is laid upwards and $(1.42 \div 2) \times a_w$ to each side; and, the procedure followed as previously mentioned.

Provision for the material, which is excessive in width, is made by enlarging or rounding off the pass at both sides as shown in Fig. 82. The dimensions of the fillet radius in the prevention of spread according to Geuze go too far in the estimation of the author. A fillet of this size at least for merchant bars, is unnecessary and requires collars which are too broad. Brovot recommends taking $R = 0.35a$. According to the plasticity of the stock, R, the fillet radius, should be exactly equal to a.

If the fillet has been chosen, the steps are determined. Those recommended include:

With a square 3.150″ and over ..... 0.197″
With a square 1.969 to 3.150″ and over about ..... 0.118″
With a 1.260 to 1.969″ square, about.... 0.079″
With a square 1.260″ and under, about 0.039″

If for example, the passes 1.969, 2.087, 2.205 inches etc., are on the roll and the schedule calls for a 2.047-inch profile, the 1.069-inch pass is used and the rolls are opened up. The spring can be assumed as ranging from 75 to 100 per cent of the step. As the spring becomes larger, the draft increases, and consequently the rolls spring more. The lathe tools, which are finished according to the templates, can be welded to soft steel shanks to save material. Steels also are available in square shapes as shown in Fig. 83, which rest loosely on the tool holders and are secured by a plug z. Some paper should be placed beneath the point designated a to give a springy support. These tools have the advantage, that their upper surface only need be ground off when sharpening, and that they seldom lose their shape; on the contrary they cut slower than ground tools.

Material needed for rolls is mold cast chilled iron. The depth of chill is determined from the deepest pass plus half the amount which will wear

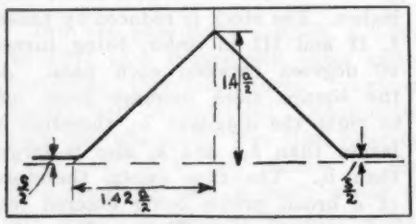


FIG. 81—CONSTRUCTION OF A FINISHING PASS FROM THE DIAGONALS

off the rolls, plus an addition ranging from 10 to 30 per cent of the whole depth. The largest pass, for example, is 3.543 x 3.543 inches. Then the pass depth is equal to half the diagonal or 0.7 x 3.543 inches = 2.480 inches. The largest diameter is to be 25.591 inches. The roll should be worn down to 21.654 inches. The smallest radius therefore is 1.969 inches smaller than the largest and the depth of chill should at least be equal to (2.480 + 1.969) x 1.1 or approximately 4.894 inches. Where it is not possible to attain such depths of chill, the passes are cast in, so that only the outermost casting skin need be turned off.

All passes of a roll should be put on one drawing to save space, square, diamond and gothic passes can be drawn over one another, because it is not likely that the various pass

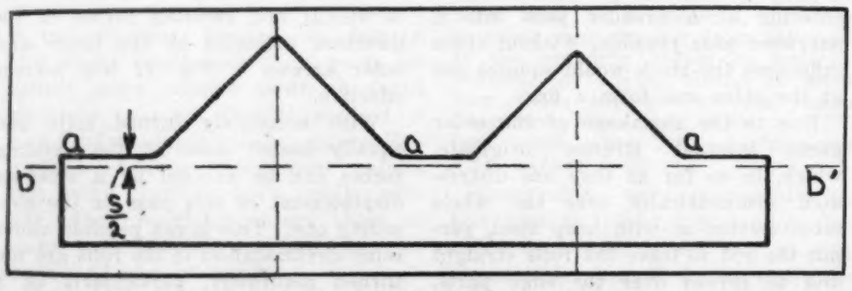


FIG. 79—DIAGRAM OF A DOUBLE TEMPLATE WHICH SIMPLIFIES THE LAYING OF SQUARE PASSES

lines will lead to confusion. Each pass, however, should be drawn separately.

The foregoing method of rolling a rod by hand without guides, that is, held with the tongs and entered into the rolls, was until the second half of the last century the only one for the manufacture of squares. With mills of this type the larger finishing passes also serve as leaders for the next smaller finishing passes, and therefore the work of designing the passes ends with the drawing of the finishing contours. The result is that a large number of square profiles can be produced on the same roll, although the length of the pieces is limited. The rod, which is set on edge or with its longest diagonal upright, has a tendency to fall over, that is, the longest diagonal becomes horizontal. This tendency which is prevented by the roof-shaped side walls of the pass, increases as the stock is elongated. The weight of the stock lying behind the mill influences through the roll plane the material tending to lie flat in front of the mill and causes it to fall over in the pass. This danger is increased with small profiles, which enter the rolls at high speed, because their ends whip back and forth. To make both influences harmless, the steel must be guided before being entered into the rolls. This

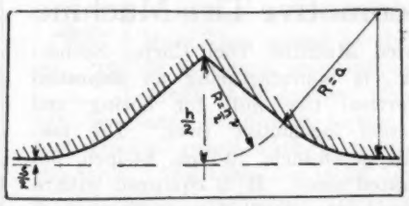


FIG. 82—FINISHING PASSES FREQUENTLY ARE ENLARGED OR ROUNDED OFF AT BOTH SIDES

is done by two flat pieces of chilled iron or hardened steel, F_1 and F_2 as shown in Fig. 84, conforming to the shape of the rolls and into which the shape of the previous pass is machined. It is best not to press them tightly together, but to allow a clearance ranging from 0.039 to 0.079 inch which can be secured by placing wires a of the desired thickness between the two halves. The points of the profile to be entered are guided better in this space, than the square sides in the machined openings. Such a guide, which is used with rounds and fast roughing, has many valuable advantages.

Falling over is prevented, even though the rolling speed and the length of the stock are large. More draft can be given, or in other words the angle α in Fig. 75 can be chosen larger. The higher draft causes spread; that is, the height of the diamond, which goes into the finishing pass, must be taken as the width or horizontal diagonal of the finishing pass. The roller takes it that the diameter going through the guide and finishing pass on edge will fill the latter. This eliminates the superfluous material at the sides usually found with hand rolled squares. Consequently, it is no longer necessary to round off the sides of the finishing pass nor to pass it through the rolls twice.

While the angle α often is taken as 90 degrees it is better with heavier

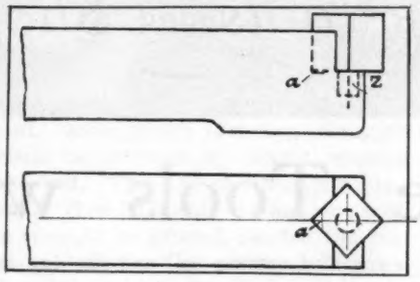


FIG. 83—LATHE TOOL MADE FROM A SQUARE SHAPE

profiles, to choose about 90.5 degrees because even then the draft decreases from a maximum in the middle toward the side. But the spreading effect of the heavy draft in the middle outweights the shrinking at the sides and, therefore, the steel spreads without squeezing out at the side, if the heights of the diamond is set properly and the guides lie exact. To prevent this danger an easing at the sides even with guide squares according to Fig. 85, frequently is provided. The result is that the finishing pass either is a true square for profiles 0.591 inch and under or one slightly out of square with which the horizontal diagonals b are 1.42, the vertical diagonals h 1.41 times the hot side of the square and when a is less than 0.59 inch. This is shown in Fig. 86. Therefore, $a_w = 1.013\ a$, $h = 1.41\ a_w$, and, $b = 1.42\ a_w$. The

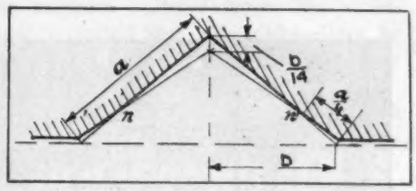


FIG. 85—EASING OF A FINISHING PASS OF A GUIDE SQUARE TO PREVENT SPREADING

spring from a square 0.197 to 0.984 inch is at least 0.039 inch and from a square 1.024 to about 1.575 inches at the most from 0.059 to 0.079 inch. The width of the inner collar can be chosen from 0.197 to 0.394 inch and the outer so that the guide boxes have plenty of room.

The roughing consists of either one diamond and one square pass or of one guide diamond, one diamond leader and one square pass. The square roughing pass is taken either from a set of three-high rolls used for hand squares or from high-speed roughing rolls. With a square larger than 0.472 inch the latter with one from 0.312-0.709 inch either can be done, over 0.709 it is better to take the square roughing pass away from the square three-high.

With a square larger than 0.472 inch the roughing pass is taken from

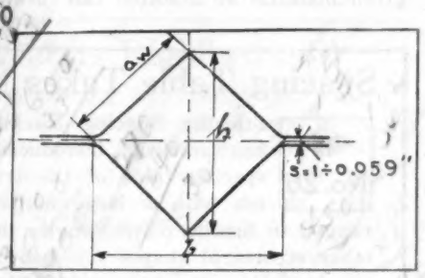


FIG. 86—FINISHING PASS FOR A GUIDE SQUARE

the high-speed rolls; with squares from 0.512 to 0.709 inch the roughing passes can be taken from either type rolls. When the profile is over 0.709 inch, however, the best practice is to take the square away from the three-high rolls.

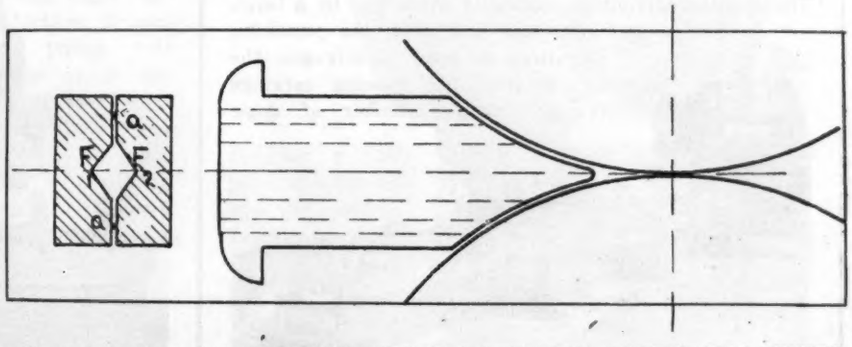
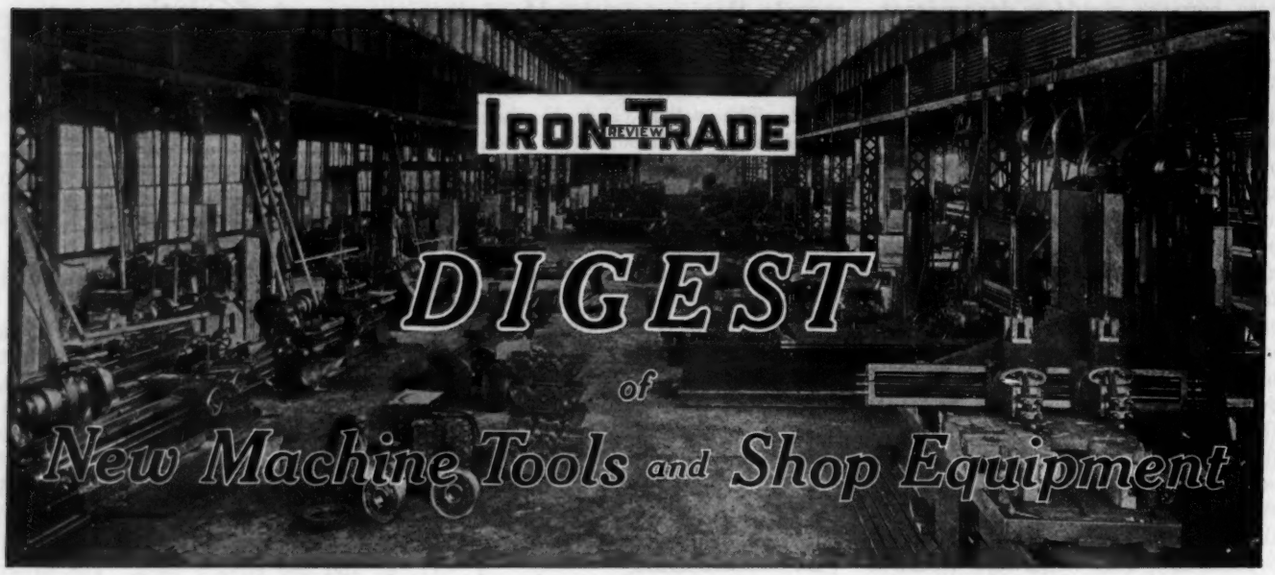


FIG. 84—TYPICAL GUIDE FOR SQUARES WHICH IS USED TO PREVENT THE PROFILE FROM FALLING OVER IN THE PASS



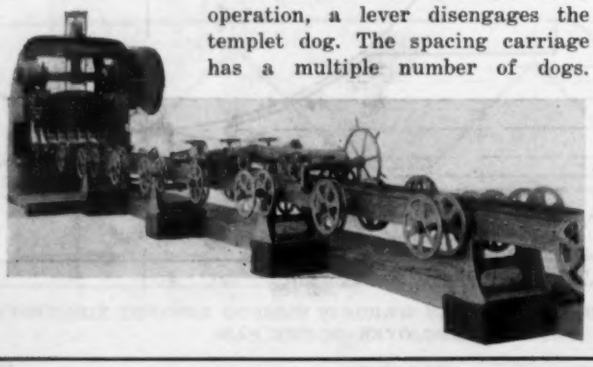
Must Judge Tools with Fairness

MACHINE tools are designed to perform definite operations or series of operations under certain conditions. Consequently, specifications of equipment usually include data showing that the unit will cut a given material at a stated rate using a specified cutting tool and running at a definite speed. Engineering design is the outgrowth of previous experience in construction, but capacity ratings are a result of actual running tests on a machine after it is completed. This being true, it should not be difficult for a purchaser to reproduce specified performance providing operating conditions are not altered. Allowance must be made, however, where these conditions are changed and the machine should be judged accordingly. Almost any machine tool

Spacing Table Takes Many Shapes

ITR No. 26

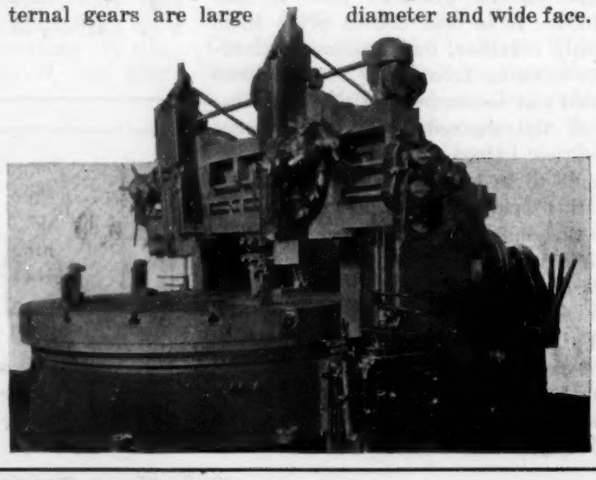
Stiening Spacing Machine Co., Pittsburgh, has recently introduced a hand-operated spacing table of the triple pass type, for use with a large multiple punch and arranged to handle plates, angles, beams, columns and other structural shapes for web punching. One pass is obtainable through adjustable rollers, adapting the table for both web and flange punching. Templet is of permanent type, made of high carbon steel. Set-up is accomplished by inserting hardened steel templet pins at the required spaces, eliminating the making of a separate templet for each job. Fractional spacings of sixteenths may be obtained. Material is loaded on the trailer table and gripped by a quick-acting gripper so arranged to allow the punching of holes close to the end of the material. A centering device centers the plates before being gripped. The spacing carriage is manually controlled by a large handwheel, and after the punching operation, a lever disengages the templet dog. The spacing carriage has a multiple number of dogs.



Improves Locomotive Tire Machine

ITR No. 27

Consolidated Machine Tool Corp., Rochester, N. Y., is manufacturing an improved design vertical tire mill for boring and turning steel locomotive tires. The machine has been built in 66-inch, 72-inch, 84-inch, 96-inch and 108-inch rated sizes. It is equipped with a narrow guide crossrail, power rapid traverse to saddles, and independent motor driven tool spindles. Continuous feed is provided with eight changes through sliding gears. Speed change gears are fully enclosed and run in oil. The table has a 4-jaw universal chuck for centering tires, each jaw having a special eccentric holddown clamp for use in boring. Tool spindles are of extra heavy rectangular section and carried in swivels with square guides throughout. Steel internal gears are large in diameter and wide face.



salesman can tell instances of being called in by a customer who complains that the new tool he just installed will not perform as specified. Since future sales necessitate a satisfied client, the salesman makes a quick trip to the customer's plant.

What he usually finds is that the customer is attempting to perform some work that is totally different from that for which the machine was intended. Frequently, also he finds that the machine has not been properly installed. Two of the troubles arising from improper installation are reversed direction of rotation and use of motors of inadequate capacity.

About ten years ago a midwestern machine tool salesman shipped to a large automobile manufacturer a small automatic grinding machine, its purchase being subject to approval after tests had been conducted. A few days after the machine had been installed, the salesman received a call stating that the machine was not satisfactory and the company did not care to purchase it. He asked what was the matter with it. The reply was that the tool would not do the work he had claimed it would do. The salesman was convinced of the merit of his product, asked permission to see the tool installed in the shop and had his request granted.

The machine was so constructed that it had a rotating wheel, much the same as a flywheel, and this was in plain view of the operator. On the wheel was a large arrow painted in white to indicate the direction of rotation. The salesman found nothing in the installation of the grinder to question so he turned on the motor. There was the answer. The machine was running backward. The shop foreman was notified of this discovery and he called the shop electrician and gave instructions for the motor to be remounted to give proper rotation.

Machine Performs Satisfactorily

At this point, the salesman intervened. The grinder was a light precision type and the spindle received its power from the motor through a light belt, consequently rotative direction could be reversed by simply crossing the belt. This the salesman did himself. Then he loaded the machine with a piece to be ground, started the machine, looked at his watch and walked down the aisle. After the necessary time for the operation had elapsed, he returned, stopped the machine, removed the work and handed it to the foreman for gaging with the micrometer calipers. Three times the salesman repeated this procedure, then he asked the foreman as to the accuracy of the work. It was satisfactory.

To make a long story short, the manufacturer purchased the grinder on the spot and in the course of a few weeks, the salesman received an order for a large number of machines. Shortly after that, a repeat order was placed. This incident suggests that under certain conditions, a salesman can profitably serve as a serviceman.

If tool purchasers were to be more careful in installing new equipment, many service calls could be eliminated, a service which increases the overhead of the tool builder, but which, of course, is passed on to the buyer.

January was a busy month for tool builders and efforts are being made to catch up with deliveries. In some cases, notable improvement has been made in this respect. Production is high and standard models prevail. Fewer new tools were introduced in January than in any month of 1925, probably indicating that builders are engaged in production of existing units rather than the designing of new.

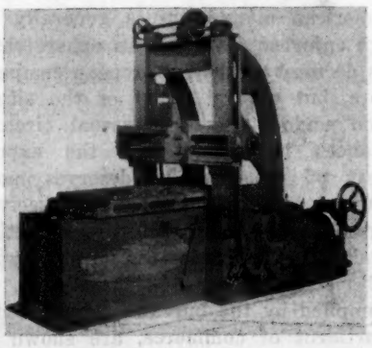
One of the new tools introduced in January was a 36 x 36-inch crank planer built by the Woodward &

(*Concluded on Page* 374)

Power Shear of Heavy Capacity

ITR No. 28

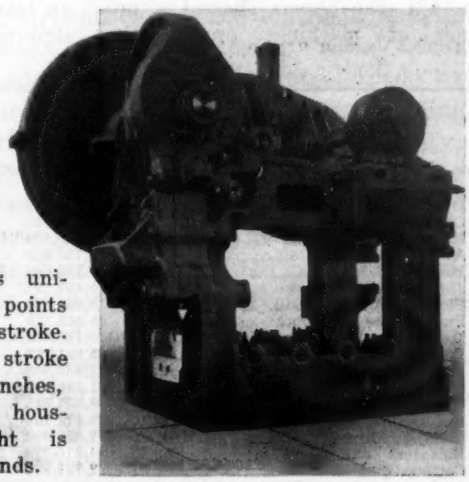
Woodward & Powell Planer Co., Worcester, Mass., has added to its equipment lines a 36 x 36-inch crank planer with a maximum stroke of 42 inches. Table is box form and can be placed with any section under the cutting tool, thus allowing work to be located anywhere on the table. The table top is 36 inches from the floor, a convenient height for the operator. Six speed changes are obtainable, 6, 8, 12, 17, 24 and 34 strokes per minute, through gear box with sliding gears. Stroke length is governed by a handwheel, the length in inches being indicated on a dial adjacent to the wheel. Head has horizontal, vertical and angular feeds, by power or hand. The crossrail has power elevation and a side head can be furnished. Table drive is through a herringbone pinion and gear and a slotted rocker mechanism. The pin on which the slotted rocker oscillates is supported at both ends, giving rigid construction. A single pulley belt drive or a 10-horsepower constant speed motor can be used for furnishing power. Housings are designed in the box form and extend down on the side of the bed.



Crank Planer Is Rigidly Built

ITR No. 29

United Engineering & Foundry Co., Pittsburgh, has just brought out a new bloom shear which is the largest electrically driven shear that company has ever built, requiring a 250-horsepower motor. The cutting pressure between knives is 1,800,000 pounds, with capacity to cut 6 x 40-inch slabs, and by means of special knives and knife blocks will shear blanks for 15, 18 and 24-inch I-beams. It is equipped with patented nonknocking type clutch which slides on splines cut into the shaft instead of on keys. The clutch is operated by an electric pull-out device which permits the shear to be operated from a distance.



Balance is uniform at all points of the stroke. Length of stroke is 18 inches, while the housing weight is 65,000 pounds.

Obtain 3,600 Degrees in New Open Hearth

(*Concluded from Page* 328)

date is a steel flask, approximately 4 feet square and 6 inches deep with numerous cross bars running the entire depth and with a metal cross section averaging about ¼-inch. This was poured clean with no evidences of misruns or cold shuts.

Although the metal at present is employed to pour only light section casting in small molds, a bottom pour ladle is employed.

The ladle lining is raised to a bright red heat before the charge is tapped from the furnace. The entire ladle of metal is poured without any difficulty other than occasionally some stopper troubles which may be ascribed to inexperience of the operator who handles the stopper rod lever.

Castings made from this metal range from fairly heavy automobile axle housings to extremely light parts such as cable clips, brake heads and other thin section castings. Cut sections reveal no evidences of gas pockets or oxidized metal and the metal at the junction point of the pouring head with the casting is dense and solid, although in many cases the shrinkage draws the top of the pouring head and the sink heads into a deep cup. A number of typical castings made by the Wanner company are shown in the accompanying illustrations. Some of the castings are annealed to relieve strains. These are placed in the furnace and brought to red heat and then cooled, the entire operation requiring about 3 to 4 hours.

Announces New Type of Steam Generator

A new steam generator recently perfected by the Combustion Engineering Corp., New York, is of interest because practically all of the boiler heating surface is exposed to radiant heat. The unit consists of a furnace, the walls of which are composed of tubes of the fin type, all exposed. Pulverized fuel is introduced through burners in the four corners and burned in a turbulent condition in the form of a vortex, due to the fact that the primary mixture of fuel and air as well as the highly preheated secondary air enter tangentially to an imaginary circle.

The flame and gases descend through a multitubular water screen into a settling chamber where the ash is deposited and the gases flow through a superheater, thence through an air preheater to the stack or to the induced draft unit. The new generator requires from one-half to two-thirds of the space required for present day boiler units of the same capacity. Application of pulverized fuel firing permits the reduced size.

The Otis Elevator Co., New York, has purchased a 3-ton electric furnace for its Buffalo plant, and the William J. Sweet Foundry Co., Irvington, N. J., has bought a 500-pound electric furnace, both orders being placed with the Pittsburgh Electric Furnace Corp., Pittsburgh.

1923 Machinery Export Ratio Falls

AMERICAN machinery manufacturers export perhaps 20 per cent of their production, while British and European manufacturers generally ship from their countries a much larger proportion. Ratios of this character necessarily fluctuate widely from year to year, according to the bureau of census, which has just announced certain statistics for 1923. The bureau reports that industrial machinery produced in the United States in 1923 was $1,403,688,000 while the value of equipment exports amounted to only $123,598,000, giving an export ratio of 8.8 per cent.

In 1921, the census showed a production of machinery aggregating $901,087,000, of which exports represented $208,798,000, or 23.2 per cent. This decline in exports from 23.2 per cent to 8.8 per cent is somewhat startling until it is recalled that during 1921 industry in the United States was suffering from depression, while the export trade still felt the stimulating influence of the post-armistice boom. In 1923, the reverse situation prevailed, for export business was exceedingly dull and machinery shipments abroad showed a volume of less than 60 per cent of that of 1921. Meanwhile production had expanded through domestic demand and showed an increase of over 55 per cent. This striking change in the conditions prevailing in the two years emphasizes the necessity for considering all factors in any discussion relating to the export ratios which might be expected in any particular branch of the machinery industry.

Collapse of the export ratio for oil-well machinery from 41.2 per cent to 12.7 per cent, perhaps is the most striking change revealed in the statistics of 1921 and 1923. For mining machinery, however, there was some improvement, for although the export ratio was shaded slightly, the volume of equipment exported increased 34 per cent in the face of the falling tendency in the general machinery market. Refrigerating equipment and cotton gins also made creditable showings.

Nevertheless, it is a fact that American manufacturers generally do not enjoy so favorable an export ratio as do most of their European competitors, but careful study of the situation undoubtedly will reveal circumstances indicating that the export part of the business deserves more careful attention than it has received previously. Comparative production and export statistics for various types of machinery for 1923 and 1921, as compiled by the bureau of census, department of commerce, are shown in the accompanying table.

Production and Exports of Machinery

Type of machinery	Production 1921	Production 1923	Exports 1921	Exports 1923
Dredging and excavating	$ 17,848,733	$ 38,240,576	$ 2,280,591	$ 1,518,005
Oil-well	27,415,031	52,158,398	11,306,713	6,626,079
Mining	30,290,171	47,589,778	7,563,544	10,137,068
Air compressors	15,728,629	27,762,309	3,905,684	2,627,548
Metal working	81,222,649	189,239,938	19,635,821	13,104,588
Shoe manufacturing	9,491,791	12,399,414	1,797,094	1,324,256
Flour and grist mill	8,663,327	9,083,777	1,812,066	1,155,485
Pumps and pumping	69,255,176	92,814,688	11,966,469	7,462,116
Textile	115,166,967	127,406,348	19,928,353	9,043,677
Woodworking	25,681,963	49,544,019	3,544,128	1,754,333
Laundry	12,982,709	19,077,439	1,304,073	1,262,887
Paper and pulp	31,580,944	30,341,629	2,987,657	2,006,812
Concrete mixers	8,665,611	14,462,712	581,861	567,635
Ice and refrigerating	33,174,126	36,541,766	1,913,014	2,264,867
Road building	17,858,209	27,514,113	989,557	921,392
Elevators and elevating	61,376,779	106,493,782	1,979,504	2,428,000
Cotton gins	2,721,290	7,175,031	118,463	315,878

Editorials

Outputs Large, Earnings Small

OPERATING results of the United States Steel Corp. for the full year of 1925 have one outstanding point of interest. This concerns the small rate of gain in earnings compared with the large increase in the production of steel during the year. Although 1925 was without parallel in the output of steel ingots, earnings of the leading iron and steel company which helped to swell the total production fail to reveal any hint of such a record.

Ingot output in 1925 was 20 per cent greater than that for the depressed year of 1924. Yet earnings of the United States Steel Corp. of $165,188,090 were less than 8 per cent greater than they were in 1924 when $152,935,130 was reported. This all goes back to the fact which has gained increasing recognition the past two years, that prices and profits in the iron and steel trade are on a low basis, both absolutely and when measured against other great industries.

IRON TRADE REVIEW showed this situation very clearly in the tabulation of the comparative earnings of different industries published in its issue of May 14, 1925. This showed iron and steel at the bottom of the list. President E. G. Grace of the Bethlehem Steel Corp. pointed out in a recent statement that billing prices of steel shipped by his company in 1925 averaged $3.48 per ton less than for 1924.

The situation is the result of a combination of causes. In the first place the country's producing facilities of 50,000,000 tons of ingots annually are above normal needs at the moment. This has given rise to keen competition among sellers, with the result that prices have suffered severely from which slight recovery has been made. It is true that during the last part of 1925 there was steady improvement in both steel company profits and in prices. However, important price advances seem improbable for the immediate future. For that reason steel producers are turning more and more to methods of reducing costs as the most effective way of helping profits.

Harmonizing Rail Labor Relations

WHILE the bill to abolish the railroad labor board and to establish a new system for adjusting railroad labor disputes will meet considerable opposition in congress, it has a good chance of being enacted. The bill provides for agreements between railroad managements and the railroad labor unions.

Opposition to its passage is formidable, although not so strong as that against the Howell-Barkley bill in the last congress. Through the National Association of Manufacturers, chiefly, some shippers' organizations claim the public neither would be represented adequately in labor disputes, nor would it be given proper assurance of uninterrupted traffic. These objections must be considered. Too often, in agreements between management and organized labor, the public is left out until everything is signed and sealed. In some respects the bill has defects. All of the railroads are not for it.

The important feature is that the railroad managements and the unions were able to get together on some foundation. That fact should give assurance that both sides, in case of labor disputes, are ready to uphold the new system and to make its operation successful. Neither side was wholehearted in its support of the decisions of the railroad labor board, which long has been the subject of misunderstandings. The new agreement should be a step in the right direction.

Making Up for Lost Time

ANNOUNCEMENTS just made of important extensions in the activities of two groups in the steel industry mark another step in the recognition of marketing as a major problem.

Action of the board of directors of the American Institute of Steel Construction in authorizing the publication of a sales manual, organizing a corps of field engineers and establishing a department of architectural relations opens the way to new opportunities for the institute in winning greater markets for structural steel. Likewise, the plan adopted by the sheet steel trade extension committee, providing for the branding of sheets which meet certain tests for quality, affords sheet manufacturers a new and effective weapon for extending its trade promotion effort.

As pointed out frequently in these columns, the old idea that steel can be sold on merit alone is inadequate under present day conditions. Steel has lost ground to many other materials of construction due to the false sense of security harbored by manufacturers who felt that steel was a necessity, and that substitutes for it would not be used extensively.

The fallacy of this view now has been demon-

strated, and at least among sheet steel producers and structural steel fabricators there is a strong conviction that intelligent marketing is required for steel products fully as much as for cement, limestone, tile, prepared roofing, lumber and other structural materials, the demand for which has been greatly stimulated because the executives who manufacture them long ago recognized the importance of extending their markets.

Companies represented in the structural fabricating and sheet producing groups got away to a late start. Their enthusiasm, however, as reflected in the recent expansions of their activities, bids fair to soon wipe out disadvantages.

Associations Have Nothing To Fear

APPARENTLY the federal trade commission is making little progress in its investigation of trade association activities, which contemplates ferreting out "open price" associations, if such are in existence. Obviously, the only excuse for the investigation, as ordered by the McKellar resolution in the senate last spring, would be to find evidence of violations of the antitrust laws, or to obtain facts that might be used as a basis for regulatory legislation.

As the United States Supreme Court has clearly defined the principles under which trade associations may function legitimately any legislation by congress would be superfluous. The commission cannot expect to find evidences of violations of the antitrust laws by grilling the associations, especially if the questions go beyond the matters affecting interstate commerce and have no bearing on alleged violations of law.

Apparently, the majority group in the federal trade commission approached the trade association investigation with some reluctance. The opinion of the attorney general was sought in regard to the McKellar resolution and the Norris resolution calling for investigation of the General Electric Co. affairs and other resolutions of this nature. The commission has no weapon to enforce legitimate trade associations to submit to inquisition. With the proper legal guidance and observance of their rights the associations have nothing to fear.

Contrasts Waterway and Railroad Development

President of Illinois Central Expresses His Views

To the Editor, IRON TRADE REVIEW:

THERE has come to my notice a copy of an editorial on "How Waterways Will Help" from the IRON TRADE REVIEW, Dec. 24. I want to express my views on the thought of the closing paragraph, in which it is held that the railroads have about reached a limit in expansion and that it is doubtful whether they can meet the increased transportation requirements of 25 years from now.

Some such doubts were raised 25 years ago, but what has happened since? In 1900 the railroads performed 141,599,000,000 ton-miles of freight service. Since then the population of the country has increased about 50 per cent and the annual per capita requirement for railway freight transportation had doubled. As a result, the railroads in 1925 performed, and you know how well they did it, 453,000,000,000 ton-miles of freight service, an aggregate increase of more than 200 per cent over the service rendered in 1900.

There is no more foundation for apprehension today than there was 25 years ago. It is true that it takes money to expand railway facilities today, and prices are higher than they were in 1900. But no expansion of transportation facilities can be accomplished without spending money. In the case of inland waterway expansion it is money raised by taxes, in the case of railway expansion it is money secured from investors; that is the only difference. And increased prices apply regardless of which source the money comes from. You referred particularly to land prices in urban centers for railway terminals. Inland waterways also require terminals in urban centers. That item of cost cannot be escaped by the development of inland waterways. Moreover, terminal expansion is only one item of railway development. There need to be provided, as business increases, more facilities of all kinds.

Then, too, it must be remembered that virtually all expenditures for increasing the capacity of the railway plant at the same time increase the economy of its operation. The money that is saved through increased economy of operation is passed on to the public, so the trend of increased capacity is toward lower rates. Measured by the general price level, railway rates are lower than ever.

Railway net earnings are not adequate at present, but they have improved in recent years. That investors have faith in the future of the railroads is shown by the fact that in the last four years more than $3,000,000,000 of new capital were invested in the expansion of railway facilities. In other words, in the four years from 1922 to 1925, inclusive, there was invested in railway development an amount equal to approximately one-seventh of the total amount previously invested in the ninety-odd years of railway history in this country.

I am not opposed to inland waterway development where it is justified, for it may well prove a means of providing better and cheaper transportation for the country as a whole, but I feel I should give my views on a plea for inland waterway development that is founded upon a desire to relieve the railroads of part of their work. The fact, of course, is that our railroads will have to be enlarged regardless of what is done with inland waterways.

C. H. MARKHAM,
President, Illinois Central Railroad Co.
Chicago, Jan. 8, 1926.

The Readers' Page

Vol. LXXVIII, No. 5 IRON TRADE REVIEW Feb. 4, 1926

Group Trademarks To Be Worth Millions

TRADEMARKS, brands and labels, well known to the public, have been appraised at times at figures running into many millions, as their value to manufacturers. The branding of products of individual companies long has been recognized as a good practice, and has been the only means in many instances whereby the producer could protect the value to him of his advertising. The more recent tendency toward standardizing on a quality basis, and branding of the products of a group of manufacturers indicates that such trade names or brands in the future will be of great value, for instance to manufacturers lifting branded sheets from the indistinguishable product known simply as "steel." These are a few of the thoughts that will suggest themselves by a reading of the article on the adoption of a brand of quality by sheetmakers, page 329, this issue.

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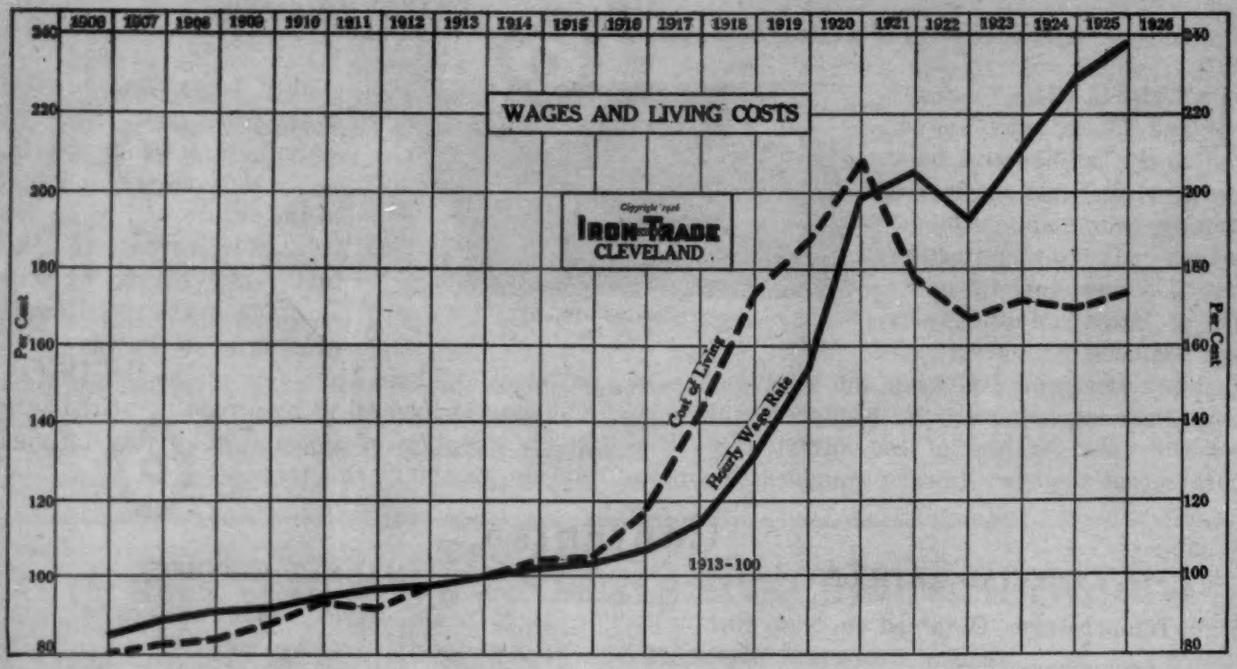
The Business Trend



Purchasing Power of Wages High

By JOHN W. HILL, Financial Editor

DURING the past year this country has seen the flowering of an unprecedented public purchasing power. This has been accompanied by hitherto undreamed of distribution of the comforts and conveniences of life. So widespread is the enjoyment of prosperity that foreign observers cannot repress their amazement.

A PROMINENT British publisher, back home from America, has attempted to explain the marvel of wealth distribution he saw here. He says it is due to the great development of electric power, now amounting to over 290,000,000 horsepower. Others have estimated that the total power and machinery in this country are equal to the labor of 3,000,000,000 slaves.

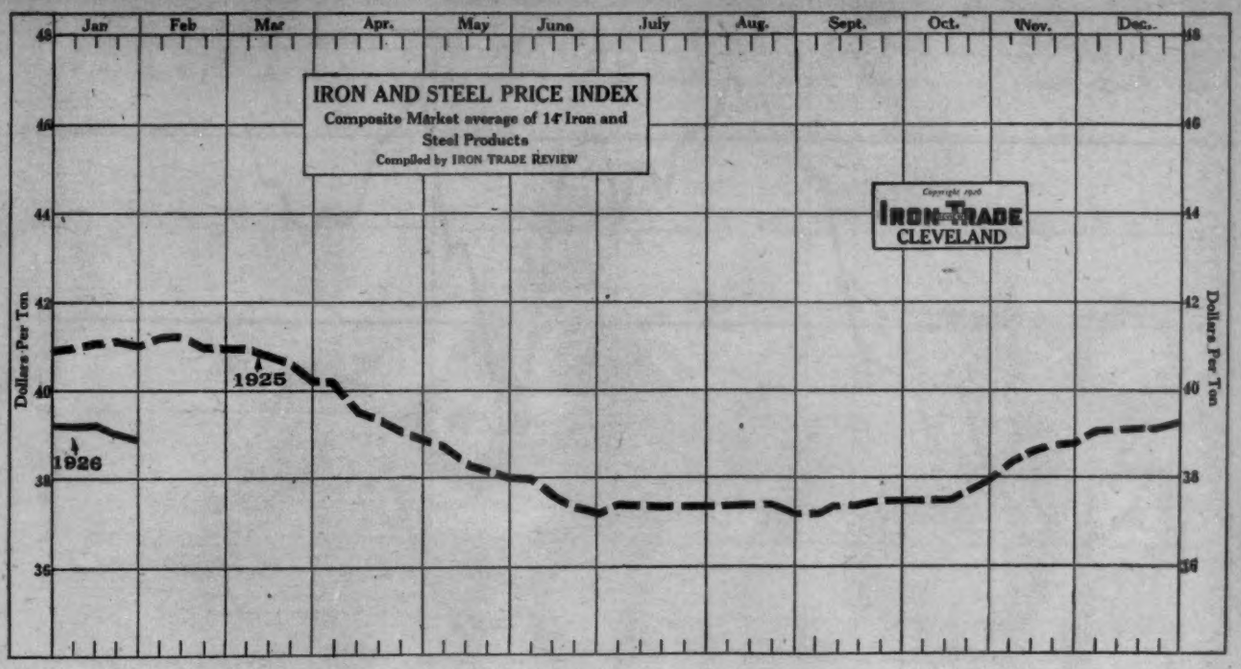
THESE facts unquestionably have great bearing upon the secret. America has vast natural resources. By means of power and machinery the country's industrial giants are converting these resources into things men want to buy. With the development of quantity production producers have been able to cut unit producing costs.

BUT at the same time it has been possible steadily to increase wage rates. This has augmented the power of purchase of wage earners who have in turn provided a great market for the country's mass outputs. Prices and living costs since prewar days have increased but not so rapidly as have wages.

THIS fact is graphically shown in the accompanying chart. The curves are based upon a study made by Ethelbelt Stewart, United States commissioner of labor statistics. Mr. Stewart has found that in 1925 hourly union wage rates were 138 per cent over the 1913 level. In the same space living costs were up only 73.5 per cent.

THESE figures reveal that the purchasing power of wages in 1925 was 37 per cent over the 1913 level. That was the highest point ever touched. It compared with 33.6 per cent over 1913 one year ago. Nonunion wage rates were found to record similar gains. With such facts at hand it is plainer why consumption of goods in 1925 was without parallel.

The Business Trend

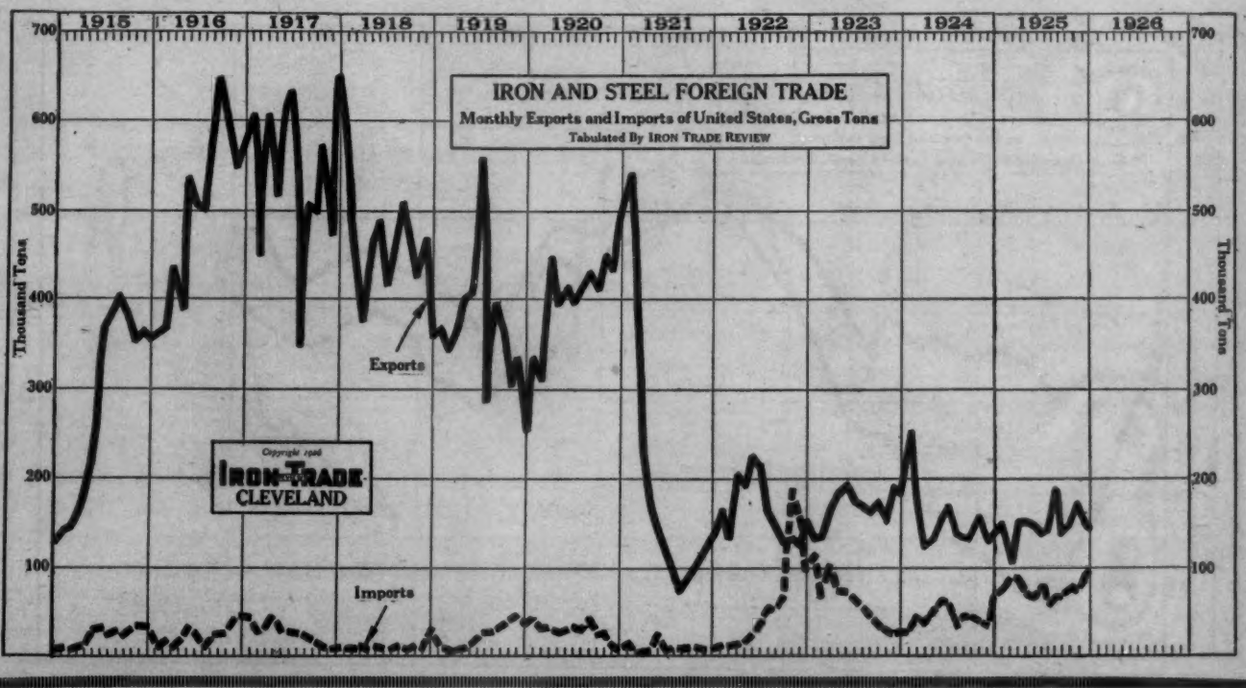


Steel Prices

IRON and steel prices have started the new year with a slightly receding tendency. IRON TRADE REVIEW'S composite market index in the last week of January stood at $39.01 per ton. This compared with $39.15 in the preceding week and with $39.24 at the first of the month. One year ago the price index was at $41.02 or about 5 per cent higher than at present. Pig iron has held firm and most finished steel products are also firm, although there has been a degree of irregularity in plates and sheets. 1913 in December, 1924.

Steel Foreign Trade

DECEMBER brought the largest volume of iron and steel imports for any month since March, 1923. The total was 98,400 tons. This compared with 79,771 tons in December, 1924. For the full year of 1925 imports totaled 943,240 tons, the highest amount for any year in history except for 1903 and 1902. Increased pig iron imports caused the total to swell. Exports in 1925 of 1,762,571 tons were below 1923 and 1924 totals. Large imports indicated foreign competition and big home demand. March, 1924.



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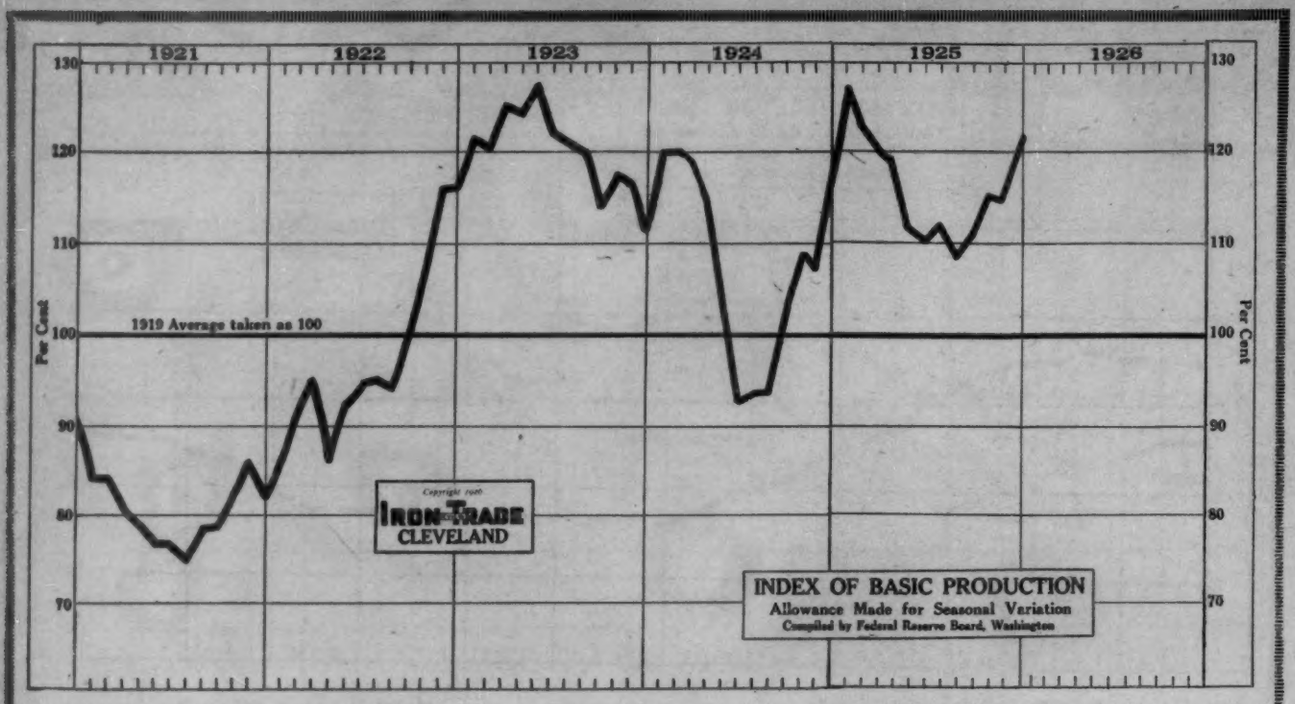
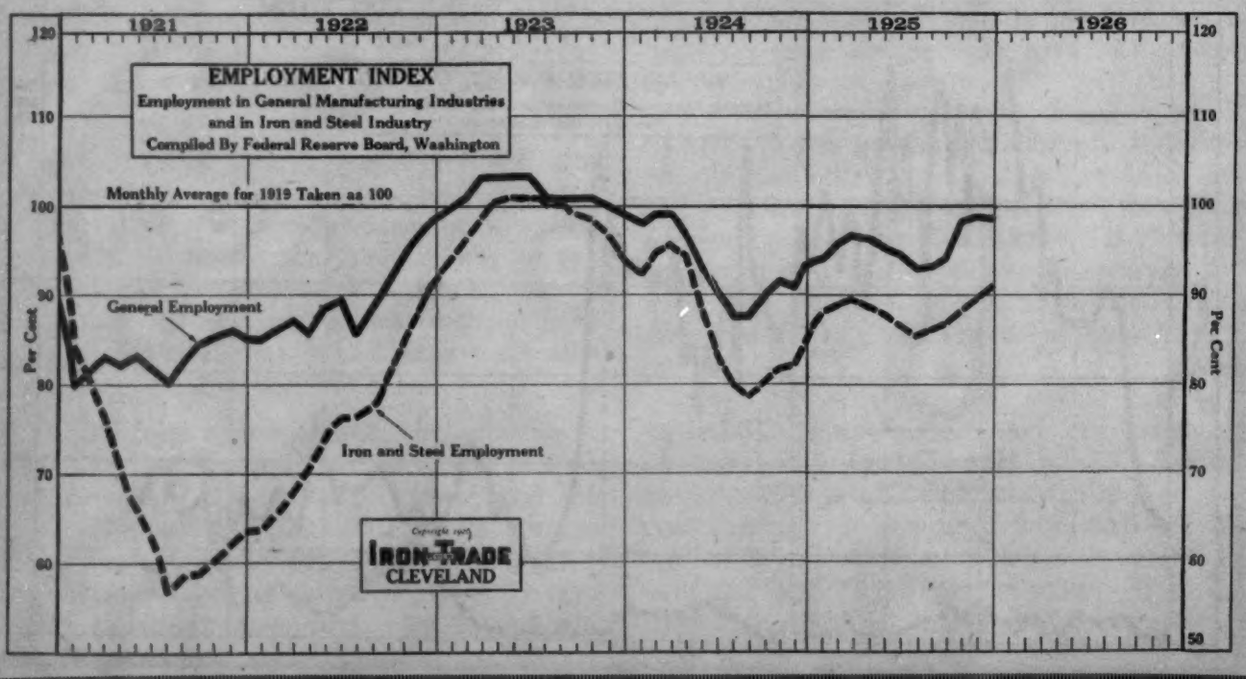


Basic Production

OUTPUTS of basic industries in December made a sharp gain over the preceding month. The index as computed by the federal reserve board was 121.5 compared with 114 in November and 117 in December, 1924. The December index was the highest reached for any month since February. It was exceeded in 1925 by only two months, January and February. Since the first of the year there has been some seasonal slackening of industrial activities but early spring impetus is indicated.

Employment Index

THE closing months of 1925 brought improvement in employment in manufacturing industries. The index compiled by the federal reserve board for December shows that employment in the iron and steel industry stood at 91.6 per cent of the 1919 average compared with 89.9 per cent of the 1919 average in November. In December, 1924, the index was 85.7 per cent. The December employment in iron and steel plants was at the highest level reached since March, 1924.



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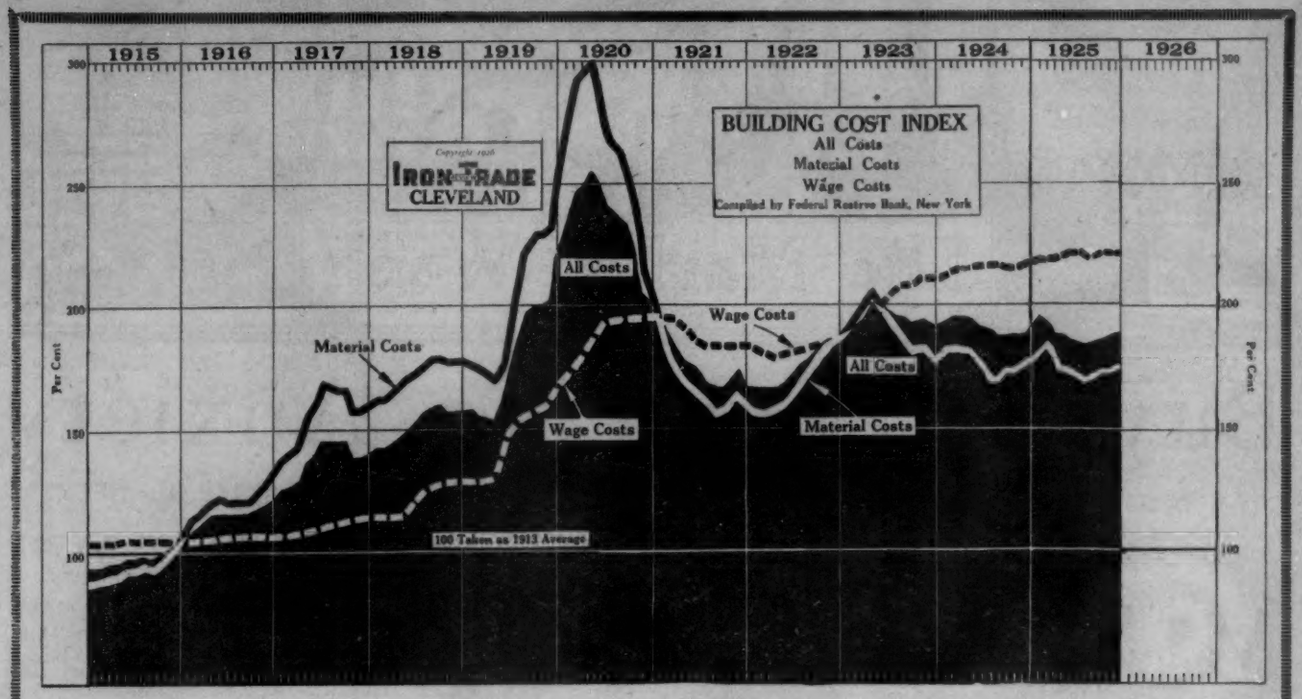
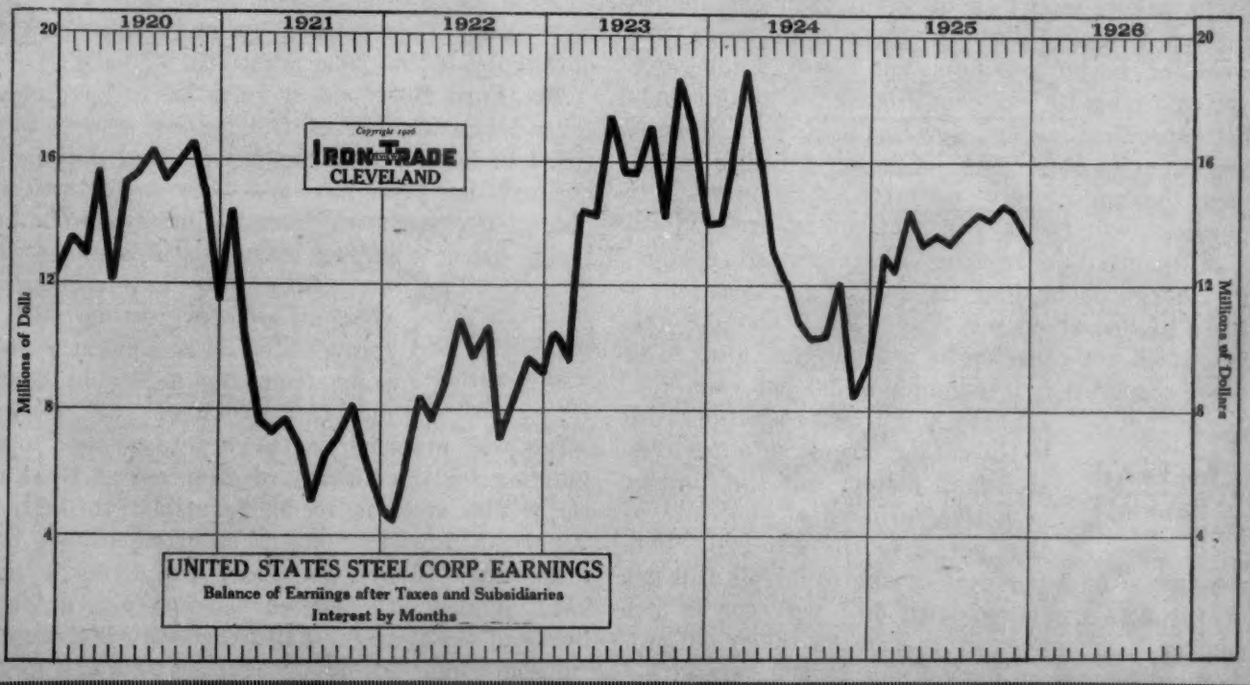


Building Costs

THE cost of building in December as computed by the federal reserve bank of New York stood at 94 per cent over the 1913 average in December compared with 91 per cent over the 1913 average in December, 1924. In December the cost of material was 77 per cent over 1913 compared with 75 per cent over 1913 one year before. Wages at 119 per cent over 1913 were at the highest level in history for building labor and they compared with 116 per cent over 1913 in December, 1924.

Steel Corp. Earnings

OCTOBER was the best month of 1925 in point of net earnings for the United States Steel Corp. This coincided with favorable operating and shipping conditions of the season. November showed a decline while December was the smallest month in point of net earnings since June. Earnings for the fourth quarter were $42,280,465 compared with $42,400,412 in the third quarter and $30,762,231 in the fourth quarter of 1924. Earnings for the year failed to reflect the big gain in steel production.



Buyers Show No Anxiety

Specify Freely Against Former Commitments But Place New Tonnage Sluggishly —High Coke Market Is Factor in Reduction of Blast Furnace Operations—Some Prices Reflect Easier Tone

MARKET activity in iron and steel continues below expectations but apparently underlying demand has suffered no appreciable contraction and still is exceedingly large. Heavy shipments against former commitments generally are the rule. The complacency of buyers in covering their wants ahead is marked since they manifest a feeling of security in the large current production and in the easy delivery conditions. Furthermore, they see no immediate prospect of higher prices. Seasonable quietness in some main lines of consumption, such as automobile manufacture, is a contributing factor.

January bookings, as scarcely to be expected, were not as good as in December when first quarter buying was in full swing. Second quarter needs are not yet up for serious consideration.

The situation offers various favorable exhibits. Strip makers report January was their best month in two years. Pittsburgh sees some signs this week of better business and sheet tonnage is stated to be 10 per cent higher. Chicago finds both specifications and new business, while lighter, are equal to shipments. Leading farming implement manufacturers estimate their first half business will be 15 per cent ahead of 1925.

Mill activities register no important change. Pittsburgh is holding its own and Chicago is a trifle higher at 89 per cent. The Mahoning valley, at 76 per cent, shows a 5 per cent loss. The Steel corporation is running at 90 per cent.

Stacks Are Banked

January pig iron production rose to the second largest total for that month in history but the number of active furnaces at the close of that period fell by 8 to 226. This represents 58.7 per cent of the country's full list of furnaces compared with 60.7 per cent in December. A number of the stacks taken off production, have been banked due to the excessively high coke market and their inactivity may be only temporary. January's output was 3,322,672 tons, against 3,249,357 tons in December, a gain of 73,315 tons or 2.2 per cent.

Coke Rises Again

The over-stimulated coke market shows sales of spot furnace fuel this week at $10 to $10.50 ovens and of crushed coke at $13 to $13.50 ovens. Some blast furnaces which recently were banked in order to release their coke supply for the market, find this to have been a very profitable expedient.

The railroads appear disposed to spread out orders for equipment and are keeping the mills and builders in a very receptive attitude. Plate mills plainly are in need of car tonnage. Car orders in January are given as 8455 with about 10,000 pending. Sales of track fastenings to western roads total 18,000 to 20,000 tons. The New York Central has formally exercised its option for 51,745 tons additional of rails.

The Ford Motor Co. is reported to have closed for a large tonnage of full finished sheets at $3 to $4 under the open market. Other automobile builders, however, have not been so fortunate in obtaining concessions from the mills and the bartering for first quarter tonnage still is under way.

German Steel at Capitol

Launching of an antidumping investigation into growing sales of foreign steel in this country gains point from the disclosure that a moderate tonnage of German structural material is to go into a book stack building for the Library of Congress at Washington. The steel is to be furnished through an American fabricator and is reported to have been purchased $16 per ton under the domestic market. A San Francisco house has placed 70,000 boxes of tin plate for Argentina with Welsh mills.

Scrap conditions have weakened further through

large offerings and light buying. The Pennsylvania railroad is taking bids on 64,773 tons.

Pig iron prices reflect an easier tone at Buffalo, eastern Pennsylvania and in the South. Distress sales at Pittsburgh were done at 50 cents to $1 under the market. Foreign iron has been sold $1 lower at Philadelphia.

Terminal and Union Station work at Cleveland with about 25,000 tons now in the market outranks all other structural inquiries.

IRON TRADE REVIEW composite of fourteen leading iron and steel products dropped for the third straight week to $39.00. Last week it was $39.01 and one month ago $39.26.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Feb. 3, 1926	Jan. 1926	Nov. 1925	Feb. 1925
PIG IRON				
Bessemer, valley, del., Pittsburgh	$22.76	22.76	22.61	24.61
Basic, valley	20.00	20.00	19.85	22.00
Basic, eastern del., eastern Pa.	22.50	22.75	22.70	24.25
*No. 2 foundry, del., Pittsburgh	22.26	22.26	22.11	23.76
No. 2 foundry, Chicago	23.00	23.00	22.75	24.00
*Southern, No. 2, Birmingham	22.00	22.75	21.00	20.75
*Southern Ohio, No. 2 Ironton	21.00	21.40	21.00	22.00
**No. 2X, Virginia furnace	23.00	23.50	23.00	24.50
**No. 2X, eastern, del. Phila.	24.01	24.26	24.01	25.26
Malleable, valley	20.50	20.50	20.35	22.00
Malleable, Chicago	23.00	23.00	22.75	24.00
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	21.76	21.76	21.61	23.26
Ferromanganese, del., Pittsburgh	119.79	119.79	119.79	119.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	10.50	6.90	6.35	3.65
Connellsville, foundry, ovens	7.50	6.40	6.85	4.30
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	36.00	36.50	35.25	39.00
Sheet bars, open-hearth, Pittsburgh	36.00	36.50	35.25	39.00
Billets, open-hearth, Pittsburgh	35.00	35.50	35.00	37.60
Wire rods, Pittsburgh	45.00	45.00	45.50	48.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	2.00	2.00	2.15
Steel bars, Chicago	2.10	2.10	2.10	2.20
Steel bars, Philadelphia	2.32	2.32	2.32	2.37
Iron bars, Philadelphia	2.22	2.22	2.22	2.28
Iron bars, Chicago, mill	2.00	2.00	2.00	2.00
Beams, Pittsburgh	1.90	1.90	1.85	2.10
Beams, Philadelphia	2.17	2.17	2.17	2.32
Beams, Chicago	2.10	2.10	2.10	2.30
Tank plates, Pittsburgh	1.85	1.90	1.85	2.10
Tank plates, Philadelphia	2.12	2.12	1.92	2.32
Tank plates, Chicago	2.10	2.10	2.10	2.30
Sheets, black, No. 28, Pittsburgh	3.35	3.35	3.25	3.50
Sheets, blue anl., No. 10, Pittsburgh	2.50	2.50	2.40	2.75
Sheets, galvanized, No. 28, Pittsburgh	4.60	4.60	4.50	4.80
Sheets, black, No. 28, Chicago	3.50	3.50	3.45	3.85
Sheets, blue anl. No. 10, Chicago	2.65	2.65	2.60	2.95
Sheets, galvanized, No. 28, Chicago	4.75	4.75	4.70	5.00
Wire nails, Pittsburgh	2.65	2.65	2.65	2.85
Wire nails, Chicago	2.70	2.70	2.70	3.05
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	18.00	18.75	19.50	19.00
Heavy melting steel, eastern Pa.	16.75	17.35	17.60	17.85
Heavy melting steel, Chicago	14.00	14.95	16.40	17.55
No. 1 wrought, eastern Pa.	18.25	18.35	18.75	20.50
No. 1 wrought, Chicago	14.75	15.00	17.70	17.75
Rails for rolling, Chicago	16.50	17.55	19.40	19.15

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Feb. 3, 1926)	$39.00
Last week (Jan. 27, 1926)	39.01
One month ago (January, 1926)	39.17
Three months ago (November, 1925)	38.73
One year ago (February, 1925)	41.13
Ten years ago (February, 1916)	35.63
Twelve years ago (February, 1914)	23.52

Late News Flashes

Corporation Running at 90 Per Cent

New York, Feb. 2.—United States Steel Corp. subsidiaries are operating at present substantially at 90 per cent of steel ingot capacity.

Chicago Operations at High Level

Chicago, Feb. 2.—Illinois Steel Co. has added a stack at its South works, giving it 19 out of 27 stacks active. This makes 27 out of 35 steelworks stacks in this district active. Youngstown Sheet & Tube Co. has blown out one of its Iroquois stacks, leaving seven out of 10 merchant stacks here active. Steel ingot operations are inclined to move up from 88 per cent.

Open-Hearth Schedules Slow Up

Youngstown, O., Feb. 2.—District open-hearth schedules were stepped down to 76 per cent of physical capacity this week to make production correspond to the volume of current business. Last week 81 per cent of district steelmaking furnaces were active. Tin mills continued to work full, bar mills about 90 per cent and pipe mills at 85 per cent.

Will Replace Semifinishing Mills

Boston, Feb. 2.—The American Steel & Wire Co. at its South works, Worcester, Mass., will replace two billet mills and two rod mills with a modern billet and rod mill of increased capacity, which will cost about $2,000,000. The expenditure already has been approved by the United States Steel Corp. and construction is expected to start in the near future, according to Clinton S. Marshall, district manager at Worcester. The production of the present plant is 600 tons of rods a day. The new mills will probably start off with this same rate of production.

Order Inquiry Into Ohio Rail Rates

Washington, Feb. 2.—Upon petition of Ohio railroads the interstate commerce commission has instituted an inquiry on pig iron rates established by the Ohio public utilities commission, from Struthers and other Ohio points in the Mahoning Valley to Canton, O., on the ground that they are less than rates from other Ohio points. The Ohio commission is accused of bringing about undue preference for interstate traffic by an order dividing iron producing groups at the Ohio-Pennsylvania boundary in February, 1923. The commerce commission also has instituted similar proceedings on iron and steel rates in which charges are made by railroads that the Ohio commission refused to allow increases such as the commerce commission had found justified.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$35.00 to 36.00
Pittsburgh, bessemer	35.00 to 36.00
Youngstown	35.00 to 36.00
Philadelphia	40.30 to 41.30
Chicago	35.00
Forging, Pittsburgh	41.00
Forging, Philadelphia	45.30 to 46.30

SHEET BARS

Pittsburgh	36.00
Youngstown	36.00

SLABS

Pittsburgh	35.00 to 36.00
Youngstown	35.00 to 36.00

WIRE RODS

¼-inch and finer

Pittsburgh	$45.00
Cleveland	45.00
Chicago	47.00

Standard extras, $2.50 per ton over ⅝-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	1.96c to 2.32c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.00c to 2.19c
Birmingham	2.05c to 2.15c

Steel Plates

Pittsburgh	1.85c to 1.90c
Philadelphia	2.12c
New York	2.14c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	2.00c to 2.10c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c to 2.10c
Pittsburgh, cold finishing	2.15c to 2.25c
Pittsburgh, forging quality	2.15c to 2.25c
Philadelphia, soft steel	2.32c
New York, soft steel	2.34c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c to 2.10c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c
Mill rail steel	1.85c to 1.95c
Philadelphia, common iron	2.22c
New York, common iron	2.24c
Chicago, common iron	2.00c

Hoops, Bands Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c to 2.50c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.90c
Worcester, Mass., Chicago	4.05c to 4.15c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled Pittsburgh, Chicago carloads	2.50c
Less carload	2.75c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—	
2300 (3½ per cent nickel)	4.60c
3100 (Nickel chromium)	3.60c
6100 (Chrome vanadium)	4.40c
6100 (Chrome vanad. spring)	3.85c
9250 (Silico-mang. spring)	3.25c to 3.40c

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45 mill g.t.	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	3.00c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.25c to 2.35c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh base

Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c

Coated nails, 100 pound kegs, subject to card of extras Feb. 1, 1926 over regular wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts. $20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28. Pittsburgh base	3.35c
No. 28. Philadelphia, delivered	3.57c to 3.67c
No. 28. Gary, Indiana Harbor	3.45c
No. 28. Chicago delivered	3.50c

TIN MILL, BLACK

No. 28. Pittsburgh	3.35c
No. 28. Gary base	3.45c

GALVANIZED

No. 28. Pittsburgh base	4.60c
No. 28. Philadelphia, delivered	4.92c
No. 28. Gary, Indiana Harbor	4.70c
No. 28. Chicago, delivered	4.75c

BLUE ANNEALED

No. 10. Pittsburgh base	2.50c
No. 10. Philadelphia, delivered	2.82c
No. 10. Gary, Indiana Harbor	2.60c
No. 10. Chicago, delivered	2.65c

AUTOMOBILE SHEETS

No. 22. Pittsburgh base	4.50c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, base	4.85

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 2¼ to 3⅝-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 3½-inch	46 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	6.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$53.20 to 53.70
Six-inch and over, Chicago	49.20 to 49.70
Four-inch, Birmingham	46.00 to 47.00
Six-inch and over, Birmingham	42.00 to 43.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60

Standard fittings, Birmingham base $110.00, 6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6-inch, smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
Tap bolts	30 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off

Rough stud bolts with nuts (250 pieces or more of a size) 40 and 10 off

Stove bolts, 80, 10 and 5 off plus 2½ off in bulk.

Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	89.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.50c to 2.60c
Structural rivets, carloads, Chicago	2.75c
**Rivets, 7/16-inch and smaller Pittsburgh, Cleveland	70 and 10 off
**Rivets, 7/16 inch and smaller Chicago	70 and 10 to 70 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.30 to 6.40 off
Wrought c.l., Pitts. dist	6.25 off
Lock Washers, f.o.b. factory	85 off

Pig Iron

Eastern Market Situation Easier—Sales Made Below Recent Schedules—New Demand Light—Foundries Are Active

WHILE blast furnace interests with good order books are adhering to their schedule of prices it is apparent that conditions are not uniform, and an easier tendency is noted in the market, principally in the East. Buffalo foundry iron has been sold below $21, base furnace, and iron is available in central Pennsylvania at $20 to $21, base furnace. Alabama iron is easier. Concessions were made on foreign iron, due to difficulties in deliveries owing to weather conditions. Distress tonnages have been sold by brokers at $19.50 to $20, base, valley, although merchant and steelworks interests are holding to $20.50. A northern Ohio steelworks closed for 4000 tons of high silicon, high sulphur basic at $19.75, delivered.

PITTSBURGH, Feb. 2.—Distress sales of pig iron in the last week or two at 50 cents or $1 under the market leave merchant furnace interests unaffected, and steelworks furnaces also are quoting the printed price schedules of $20, $20.50 and $21 on basic, foundry and bessemer, respectively. Some speculators have been disposing of stocks they have been holding a long time, to reduce interest and carrying charges. An Ohio steel interest, already under contract with an affiliated interest for its pig iron requirements, bought two lots totaling approximately 4000 tons of high silicon, high sulphur basic, one from a broker and the other from a valley furnace interest at about $19.75, delivered. Several small lots of bessemer were sold at $21, valley. Foundry iron activity is confined largely to single carloads. One or two orders already taken for second quarter, involving 500 tons each at $20.50, base, serve as a market test.

The average selling prices of bessemer and basic iron for January were $21 and $20, valley, respectively, according to compilations made by W. P. Snyder & Co. These are the same as the averages for December.

Boston, Feb. 2.—New England consumers of pig iron continue to await developments before placing second quarter contracts. Prices are irregular. A Buffalo producer has advanced base price from $21 to $22, furnace. Other Buffalo producers have offered iron below $21. Continental iron ranges from $21.50 to $22, on cars at Boston. India iron has moved up to $23, on cars. Small lots of No. 2X eastern Pennsylvania iron, (2.25 to 2.75 silicon) have sold recently at $22.50, furnace, or $26.15 delivered. Total sales of the week probably exceeded the total for the previous week.

Cleveland, Feb. 2.—Sales of pig iron for second quarter booked by furnace interests with headquarters here totaled 13,000 tons during the past week, divided mainly between two producers, covering outside territory. More than half of this was represented by orders from Michigan, Indiana and northwestern Ohio. Stoveworks, implement plants and automobile foundries particularly are active, and shipments to them on contracts are holding up to a high average. One of the largest implement makers in the country estimates its first half business this year at 15 per cent over the corresponding period last year. About 50 per cent of current orders are for second quarter. An Indiana melter closed for 1200 tons of foundry iron for that period. An Erie, Pa. foundry is inquiring for 1000 tons for the second quarter, this being the largest out of inquiries calling for 500 tons. The local market is quiet and quotations at $22, furnace, from two sources are practically untested. On outside business $20.50, valley, and $23, lake furnace, applied on sales during the past week. Buffalo makers are asking $21, base, furnace for second quarter, and $22, for the present quarter, although the latter price has been shaded.

A Canton, O., consumer is in the market for around 4000 tons of basic for first quarter

The McKinney Steel Co. has blown out two of its four blast furnaces at Cleveland, in line with reduced steelworks operations.

New York, Feb. 2.—Sales of pig iron in this territory in the past week probably were not above 6000 tons. The only large inquiry out was from the Worthington Pump & Machinery Corp. for about 3500 tons for second and third quarters. Easier prices are noted. Eastern Pennsylvania foundry is $22 to $23, base furnace. Buffalo iron is $21 to $22, base furnace, with sales at lower prices than these Buffalo equivalents. Central Pennsylvania foundry iron was sold at $20 to $21, base furnace. Foreign foundry was sold at $20 to $22, base, duty paid, depending on circumstances.

Philadelphia, Feb. 2.—Large arrivals and freezing of the Delaware river preventing deliveries to some plants has resulted in lower price offerings of foreign iron in the past week. Foreign foundry iron was sold at $20 to $21, duty paid, tidewater. This flurry appears now to be ended, as current prices range from $21 to $22, depending on the grade. Eastern Pennsylvania foundry iron still is $22.50 to $23, base, furnace, although due to lower offerings on imported iron No. 1 iron has been sold at equivalents below $22.50 to $23, base. Sales include 500 tons of English low phosphorus. Virginia foundry iron now is $22.50 to $22.75, base, furnace. The Pulaski Iron Co. is expected to relight its stack this week.

Buffalo, Feb. 2.—Inquiry for pig iron is estimated at close to 5000 tons. Prices are unchanged, sellers well booked asking $22 for first quarter, and $21 for second quarter. Sellers with steelworks are quoting first and

(*Concluded on Page* 360)

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$21.00
Bessemer, Pittsburgh	22.76
Basic, valley	20.00
Basic, Pittsburgh	21.76
Basic, Buffalo	20.00 to 20.50
Basic, del., eastern Pa.	22.50 to 23.00
Malleable, valley	20.50
Malleable, Pittsburgh	22.26
Malleable, del., Cleveland	22.26 to 22.50
Malleable, Chicago	23.00
Malleable, Buffalo	21.00 to 22.00
Malleable, del., eastern Pa.	24.00 to 24.75
No. IX, eastern del., Phila.	23.50 to 24.76
No. IX, Buffalo	22.50 to 23.50
No. 1 foundry, Chicago	23.50
No. 2 foundry, valley	20.50
No. 2 foundry, Pittsburgh	22.26
No. 2 foundry, Buffalo	21.00 to 22.00
No. 2 foundry, Chicago	23.00
No. 2 foundry, Granite City	23.50 to 24.00
No. 2 foundry, Ironton fur.	21.00
No. 2 foundry, del., Cleveland	22.26 to 22.50
No. 2 foundry, del., Phila.	23.39 to 23.76
No. 2 foundry, N. J., tidewater	23.39 to 24.76
No. 2X, eastern del., Phila.	23.89 to 24.26
No. 2X, east, N. J., tidewater	23.89 to 25.26
No. 2X, eastern del., Boston	26.65 to 27.15
No. 2X, foundry, Buffalo furnace	21.50 to 22.50
No. 2X, Buffalo, del., Boston	26.41 to 26.91
Continental foundry f.o.b. Boston	22.00 to 22.50
India, 2.25 to 2.75 silicon, delivered cars, Boston	22.50 to 23.00
No. 2 Alabama, Birmingham	22.00 to 23.00
No. 2 Alabama, Cincinnati	26.69
No. 2 Tenn., Birmingham	22.00
No. 2 Tenn., Cincinnati	25.69
No. 2 southern, Philadelphia	27.01 to 28.01
No. 2 southern, Chicago	27.01 to 28.01
No. 2 southern, Chicago (barge and rail)	25.18
No. 2 southern, Boston (rail and water)	27.91 to 28.91
No. 2 southern, Cleveland	27.01 to 28.01
No. 2 southern, St. Louis	25.42 to 26.42
No. 2X, Virginia, furnace	23.00 to 23.05
No. 2X, Virginia, Phila.	28.17 to 28.42
No. 2X, Virginia, Jersey City	28.54 to 28.79
No. 2X, Virginia, Boston	28.92 to 29.17
Gray forge, eastern Pa.	22.50 to 23.00
Gray forge, val. del. Pitts.	21.76
Low phos., standard, valley	28.00 to 28.50
Low phos., standard, Phila.	24.76 to 27.79
Low phos., Lebanon, furnace	24.00 to 25.00
*Low phos., English	24.26 to 24.76
Charcoal, Birmingham	31.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $26.50; 6 per cent $27.50; 7 per cent $28.50; 8 per cent $29.50; 9 per cent $31.00; 10 per cent $33.00; 11 per cent $35.00; 12 per cent $37.00; 13 per cent $39; and 14 per cent $41.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $35.00; 11 per cent $37.00; 12 per cent $39.00; 13 per cent $41.00; 14 per cent $43.00; 15 per cent $45.00; 16 per cent $48.00; 17 per cent $50.50.

*Duty paid, delivered Philadelphia consumers.

Coke

Prices Prohibitively High for Furnaces — Steelworks Stacks Selling Fuel

BLAST furnaces are out of the market for beehive coke, with the standard furnace grade selling at $10 to $10.50, Connellsville. Some steelworks furnaces that have been banked recently are finding coke sales highly profitable. Crushed coke is selling at $13 to $14, despite milder weather conditions. Foundries having regular connections are able to obtain supplies at $7.50.

Pittsburgh, Feb. 2.—Blast furnaces are not participating as buyers in the present beehive coke market. Prices are prohibitively high. Standard furnace coke was sold yesterday and today in lots up to 25 carloads at $10 to $10.50, and $10.50 to $11 now is quoted. Some sales are for shipment in the third week of February. The Clinton Iron & Steel Co., Pittsburgh, banked its furnace last Sunday and is well sold up on coke thus released. The W. J. Rainey likewise is an active seller of coke that was released when a valley merchant stack gave it permission to sell two or three days' coke output while it repaired a gas washer at its stack. The standard furnace grade is growing scarcer, due to attractive levels still bid by eastern buyers, for prompt delivery and near future. After sales at $13 and $13.50 for crushed coke one maker this morning quoted $14. Others are making sales against next week's production of yard crushed coke at $12.20 and $12.50. Oven operators are indifferent about booking foundry coke business. A few spot sales are noted at $10.50 and $11. The regular trade is taken care of at $7.50.

Production of coke in the Connellsville region for the week ended Jan. 23 was 234,870 tons, compared with 233,200 tons the preceding week, according to the *Connellsville Courier*.

Boston, Feb. 2.—Urgent domestic demand for coke is making inroads into the foundry fuel supply. Spot sales of beehive coke have increased. Both local by-product producers are operating at capacity and prices are unchanged at $13, delivered for the foundry grade.

Detroit, Feb. 2.—Demand for foundry coke is about normal. Sellers are able to ship promptly. The price is unchanged at $8.50, ovens. Inability to cope with the demand marks the domestic coke situation. Outside shipments continue regularly and the price is unchanged.

New York, Feb. 2.—Spot foundry coke was sold here during the week at $11, Connellsville, and some contracting for second quarter was noted at $5.50 to $7.50, Connellsville. By-product coke continues quotable at $11.01 to $11.52, delivered at Newark and other northern New Jersey points.

Cincinnati, Feb. 2.—Heavy movement of domestic coke is reported by all producers and sellers in this district. Foundry coke demand is normal, but the movement during the present month is expected to show a marked improvement over January. Prices are firm, with many of the domestic producers sold up until April 1.

St. Louis, Feb. 2.—Demand for all grades of coke continues brisk. Specifications are taxing the shipping capacity of producers. Considerable new business is being refused because of inabiltiy to supply the tonnages desired. Foundry coke is moving in good volume. Shipments to the West and Southwest continue large, and specifications for furnace coke from industrial users have increased during the past two weeks. Prices are firm, with premiums paid in some instances for immediate delivery.

Birmingham, Ala., Feb. 2.—Coke production, demand and quotations are steady. Contracts in hand and in sight indicate an active demand for several weeks, and hope is expressed that conditions will be favorable through first half. Announcement will be made shortly of an additional battery of 50 by-product coke ovens for this district.

Coke Prices

Beehive, Ovens

Prices per net ton

Connellsville furnace	$10.50 to 11.00
Connellsville, foundry	7.50 to 11.00
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county furnace	6.00 to 6.50
Wise county foundry	6.50 to 7.00
Alabama foundry	5.75 to 6.00
Alabama furnace	5.50

By-Product

Foundry, Newark, N. J.; del.	$11.01 to 11.52
Foundry, Chicago, ovens	10.50
Foundry, New England, del.	13.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill.	10.00
Foundry, Birmingham	5.75 to 6.00
Foundry, Indianapolis, del.	11.25

Ferroalloys

Market Is Quiet—English Ferromanganese Sold Under $115

Pittsburgh, Feb. 2.—The market for ferroalloys continues quiet. Consumption is along fairly heavy lines and specifications against contracts accordingly are fair, but new buying is exceedingly limited. A few single carload orders again are noted in ferromanganese, and the $115 seaboard base price continues the quotable market although one seller of English material has been offering a slight concession. Some other foreign ferromanganese, usually not up to standard, continues to be offered at $5 per ton less. Specifications against 50 per cent ferrosilicon contracts are freely furnished and some spot buying of 10 to 12 per cent material is done each week. Spiegeleisen inquiries find producers unwilling to respond.

New York, Feb. 2.—Special alloys are steady. Users' needs appear well covered by contracts. Some asking prices run to $1.17 and higher on ferrotungsten, a pound contained, but some may be had a little less. Tungsten ore, wolframite, is mostly about $12.50 for spot and a few cents less for future shipments from China. Not much business has been done the past week.

Chicago, Feb. 2.—Little spiegeleisen is available and the market is tight at $34, domestic furnace. Ferromanganese is unchanged at $115, seaboard, and all rumors of shading of this level to the east have subsided.

Drill Through Lake's Ice, Find Iron Ore

Duluth, Feb. 2.—During the cold weather drilling has been carried on through the ice of Big Rabbit lake, Cuyuna range, with the result that some previous conclusions by mining engineers respecting the existence of ore beneath the lake are being confirmed. The ore body is believed to be an extension of that of the Kennedy mine, a depleted property, Pickands, Mather & Co. are doing the drilling as operators for the Youngstown Sheet & Tube Co., the principal interest in the Kennedy mine.

Drilling has been in progress in the vicinity at intervals during the last two years. The question of the state's rights was smoothed out some time ago, and it is said reports that an exceptionally large body of ore has been discovered are exaggerated. If the lake is drained, mining probably will be done by the underground method, as the ore is several hundred feet beneath the surface of the lake.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, per pound contained	1.14 to 1.16
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.00 to 11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 4.00
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent material)	122.50

†Duty paid

Plates

Mill Operations High, Though New Demand Is Light—Car Repairs and Barges Lead

CURRENT plate demand is of comparatively small proportions, and prices continue to show a wide range, from 1.80c to 1.90c, Pittsburgh, with less in competitive Pittsburgh-Chicago territory. About 10,000 tons of plates were closed in eastern territory for car repairs and car floats, and 1300 tons for barges at Pittsburgh.

PLATE PRICES, PAGE 348

Philadelphia, Feb. 2.—Requirements of southern railroads are the leading feature of new plate tonnage pending before eastern mills. Repairs to Seaboard Air Line cars will need 4000 to 6000 tons of plates, shapes and bars, which are expected to be purchased by the Richmond Car Works. The Lenoir Car Works is inquiring for about 3000 tons of plates for repairing 1600 gondolas for the Southern railroad. The American-Brown Boveri Co. has booked four car floats for the New York Central lines, and has placed the steel, 3000 tons of plates and 1100 tons of shapes, with the Bethlehem Steel Co. Eastern platemakers while booking less than in December were able to maintain production at 70 per cent through January, and demand now is improving.

The New York Central has placed two diesel, electric tugboats with the Staten Island Shipbuilding & Dry Dock Co.

Boston, Feb. 2.—Actual plate sales have been few during the week. New work is heavy, however, with more than 1000 tons of bridge work scheduled for award in the greater Boston district. Prices range from 1.75c to 1.80c, Pittsburgh.

Pittsburgh, Feb. 2.—Two lots of barges furnished this week's feature in the plate market One lot of five involves 600 tons and another lot of six takes 750 tons. Plate mill operation in the Mahoning valley is approximately at 60 per cent. In this immediate vicinity however, operations are higher due to large car plate backlogs. While in Pittsburgh 1.90c, Pittsburgh, continues the quotable market, 1.80c and 1.85c Pittsburgh, are quoted in the East. This week eastern makers named those figures on carload business in Ohio points ordinarily reached by valley mills with a freight differential in their favor over Pittsburgh mills.

Buffalo, Feb. 2.—In the hope of bringing out some pending business platemakers have cut prices to 2.065c, Buffalo, it is reported, although some have a nominal price of 2.165c. Some fair tonnages are pending and may be closed soon. The market is not active.

Cleveland, Feb. 2.—A water line for Portland, Oreg., requiring 2500 tons of plates on which bids are going this week, has been receiving attention from fabricators in this territory. Further tonnage for refinery stills also has come out. With this exception, the plate market shows a moderate run of tonnage, principally in small lots. Tonnage taken in January in this district was less than in December. The open price continues at 2.04c to 2.09c, Cleveland or 1.85c to 1.90c, Pittsburgh but occasionally 1.80c is being done, usually where specifications are very attractive.

Chicago, Feb. 2.—Plate mills are decidedly in need of car tonnage and are generally working on a week-to-week basis. If car business develops as expected, plate capacity will be taken up for 90 days. The Chicago & Eastern Illinois inquiry for 500 hoppers calls for 7000 tons of steel. A western pipe line requiring 5000 tons of plates still is hanging fire. In the immediate Chicago district plates are unchanged at 2.10c, Chicago, but this level cannot be maintained in the face of competition, especially by eastern makers, in neutral territory.

Cincinnati, Feb. 2.—The Big Four railroad is reported to have placed an order with the Otis Steel Co., Cleveland for 1700 tons of plates for second quarter delivery.

CONTRACTS PLACED

750 tons, six barges for Doullutt & Dwin, Mobile, Ala., general contractors, to the Dravo Contracting Co.

600 tons, five barges for the La Belle Transportation Co., Wheeling, W. Va., to the Jones & Laughlin Steel Corp.

100 tons, dredge pipe for Rio Vista, Calif., to Pacific Coast Engineering Co.

CONTRACTS PENDING

2500 tons, water line, Portland, Oreg.; bids taken this week.

1600 to 2000 tons, pipe line for Portland, Oreg.; bids in Feb. 3.

300 tons, tanks, naval air station, Pensacola, Fla.; pending.

Semifinished

Specifications Maintaining Mill Schedules at Steady Rate—Prices Unchanged

SPECIFICATIONS against contracts for semifinished material are in sufficient volume to enable most mills to maintain schedules at a satisfactory rate, and comparatively little is available for the market, while new demand is slack. An Ohio sheetmaker recently placed 6000 tons with a valley mill at $36, Youngstown, and this price is representative of the market.

SEMIFINISHED STEEL PRICES, PAGE 348

Youngstown, O., Feb. 2.—No change in the semifinished situation is apparent. Producers have their first quarter production of sheet bars covered with orders and specifications are being issued against these in such volume as to prevent tonnages reaching the open market. An open sheet bar schedule at one plant was filled recently by a 6000-ton requirement of an Ohio sheetmaker. The price was $36, Youngstown. No inquiry is reported in the present market. Prices are unchanged, standard billets and slabs being quotable at $35, Youngstown, and sheet bar and small billets at $36, Youngstown.

Philadelphia, Feb. 2.—A local consumer is inquiring for several hundred tons of billets. This is the principal development in the market here. Prices are unchanged.

Pittsburgh, Feb. 2.—Specifications against semifinished steel contracts are coming in either on time or ahead of time. The situation as regards shipments against contracts is particularly favorable from the mills' standpoint, and even on sheet bars the rate of specifying is good in view of the recent holding up of orders in sheets. Occasionally new business develops, usually involving below 1000 tons at a time. One inquiry now current here involves 600 tons of sheet bars and slabs. Prices being quoted on this inquiry are $36 and $35, Pittsburgh, respectively. Specifications against rerolling billet contracts are fairly plentiful and mills are so well obligated that they are disinterested in further bookings on 4 x 4-inch except at higher figures than $35, Pittsburgh. From $36 to $38 is quoted on small billets, and $41 is the market on forging billets. Activity in the latter is confined to specifications since every user is protected by contractual arrangements. Wire rods are moving slowly at $45, Pittsburgh, and skelp is unchanged at 1.90c.

Cleveland, Feb. 2.—New demand for sheet bars, billets and slabs is dull, and the market here is untested, although nominally $36 for sheet bars, and $35 for billets and slabs, valley basis. Specifications are slower, and the McKinney Steel Co. has on four open-hearth furnaces this week, compared with seven last week.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	14.00 to 14.50
Boston (dealers)	12.00 to 12.50
Buffalo	16.50 to 17.25
Buffalo, No. 1	18.00 to 18.50
Chicago	13.75 to 14.25
Cincinnati (dealers)	13.00 to 13.50
Cleveland	16.00 to 16.50
Detroit	14.75 to 15.25
Eastern Pennsylvania	16.50 to 17.00
Bethlehem delivery	15.50 to 16.00
New York (dealers)	11.75 to 12.25
Pittsburgh	18.00 to 18.50
St. Louis	15.00 to 15.50
Valleys	18.00 to 18.50

COMPRESSED SHEETS

Buffalo	16.50 to 17.00
Chicago	12.75 to 13.25
Cleveland	14.50 to 15.00
Detroit	12.50 to 13.00
Pittsburgh	16.00 to 16.50
Valleys	17.00 to 17.50

BUNDLED SHEETS

Buffalo	14.00 to 14.50
Cincinnati (dealers)	9.00 to 9.50
Cleveland	12.50 to 12.75
Eastern Pennsylvania	14.50 to 15.00
Pittsburgh	15.00 to 15.50
St. Louis	9.00 to 9.50
Valleys	15.25 to 15.75

SHEET CLIPPINGS, LOOSE

Chicago	9.50 to 10.00
Cincinnati	9.00 to 9.50
Detroit	9.75 to 10.25

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Buffalo	18.00 to 18.50
Chicago	18.50 to 19.00
Cincinnati (dealers)	16.50 to 17.00
Cleveland (over 6 ft.)	16.75 to 17.00
Detroit	17.00 to 17.50
St. Louis	17.50 to 18.00

STOVE PLATE

Birmingham	14.00 to 14.50
Boston (consumers)	14.00 to 14.50
Buffalo	15.00 to 15.25
Chicago	16.50 to 17.00
Cincinnati (dealers) (net)	9.50 to 10.00
Cleveland	13.75 to 14.00
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	14.50 to 15.00
New York (dealers)	10.25 to 10.75
Pittsburgh	13.50 to 14.00
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo	19.75 to 20.25
Cincinnati (dealers)	17.50 to 18.00
Eastern Pennsylvania	20.00 to 21.00
Pitts. billet and bloom crops	22.00 to 23.00

SHOVELING STEEL

Chicago	13.75 to 14.25
Pittsburgh	14.50 to 15.00
St. Louis	15.00 to 15.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	17.25 to 17.75
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 21.00
St. Louis	16.50 to 17.00

FROGS, SWITCHES, GUARDS

Chicago (cut)	16.00 to 16.50
Eastern Pennsylvania	17.00 to 17.50
St. Louis	16.50 to 17.00

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	17.75 to 18.25
St. Louis	15.50 to 16.00

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	13.00 to 14.00
Boston (dealers)	13.50 to 14.00
Buffalo, No. 1	15.50 to 16.00
Buffalo, No. 2	17.00 to 17.50
Chicago, No. 1	14.75 to 15.25
Chicago, No. 2	14.50 to 15.00
Cincinnati, No. 1 (deelers)	9.50 to 10.00
Cleveland, No. 1	13.75 to 14.25
Eastern Pennsylvania	18.00 to 18.50
New York, No. 1 (dealers)	15.50 to 16.00
Pittsburgh, No. 1	15.50 to 16.00
Pittsburgh, No. 2	18.00 to 18.50
St. Louis, No. 1	13.75 to 14.25
St. Louis, No. 2	15.00 to 15.50

WROUGHT PIPE

Boston (dealers)	11.00 to 11.50
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	12.25

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00 to 17.50

BUSHELING

Buffalo	15.50 to 16.00
Chicago, No. 1	13.00 to 13.50
Chicago, No. 2	9.50 to 10.00
Cincinnati, No. 1 (dealers)	10.00 to 10.50
Cleveland, No. 1	14.00 to 14.50
Cleveland, No. 2	13.50 to 14.00
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	15.50 to 16.00
St. Louis, No. 1	13.00 to 13.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston (chemical)	9.00 to 9.50
Buffalo	13.50 to 14.00
Chicago	9.50 to 10.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	13.50 to 14.00
Detroit	10.25 to 10.75
Eastern Pennsylvania	14.00 to 14.50
New York (dealers)	10.50 to 11.00
Pittsburgh	14.50 to 15.00
St. Louis	8.75 to 9.25
Valleys	12.50 to 13.00

CAST IRON BORINGS

Birmingham (chemical)	15.50 to 16.50
Birmingham (plain)	8.00 to 8.50
Boston (chemical)	11.00 to 11.50
Boston (dealers)	9.00 to 9.50
Buffalo	13.75 to 14.25
Chicago	13.00 to 13.50
Cincinnati (dealers)	9.50 to 10.00
Cleveland	14.00 to 14.50
Detroit	10.75 to 11.25
Eastern Pennsylvania	14.00 to 14.50
Eastern Pennsylvania (chem.)	16.65 to 17.00
New York (dealers)	10.75 to 11.25
Pittsburgh	14.50 to 15.00
St. Louis	12.00 to 12.50
Valleys	13.50 to 13.75

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	9.00 to 9.50
Buffalo	13.75 to 14.25
Cincinnati (dealers)	9.00 to 9.50
Cleveland	13.50 to 14.00
Detroit	10.75 to 11.25
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	10.75 to 11.25
Pittsburgh	14.50 to 15.00

PIPES AND FLUES

Chicago	12.50 to 13.00
Cincinnati (dealers)	8.00 to 8.50
Cleveland	12.25 to 12.50
St. Louis	11.50 to 12.00

RAILROAD GRATE BARS

Buffalo	14.50 to 14.75
Chicago	14.75 to 15.25
Cleveland	13.75 to 14.00
Eastern Pennsylvania	14.50 to 15.00
New York (dealers)	11.50 to 12.00
St. Louis	13.50 to 14.00

FORGE FLASHINGS

Boston (dealers)	9.50 to 10.00
Buffalo	14.50 to 15.00
Chicago	10.00 to 10.50
Cleveland (under 10 in.)	14.25 to 14.50
Cleveland (over 10 in.)	14.25 to 14.50
Detroit	10.50 to 11.00
Pittsburgh	14.00 to 14.50

FORGE SCRAP

Boston (dealers)	9.50 to 10.00
Chicago	18.50 to 19.00
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	23.00 to 23.50
St. Louis	21.25 to 21.75

Iron Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	9.50 to 10.00
Buffalo	15.00 to 15.50
Chicago	14.50 to 15.00
Cleveland	14.50 to 15.00
Eastern Pennsylvania	15.50 to 16.00
Pittsburgh	16.50 to 17.00
St. Louis	12.50 to 13.00

STEEL CAR AXLES

Birmingham	19.00 to 19.50
Boston (shipping point)	18.00 to 19.00
Buffalo	18.50 to 19.00
Chicago	19.50 to 20.00
Cleveland	18.00 to 18.50
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	22.50 to 23.00
St. Louis	19.25 to 19.75

SHAFTING

Boston (shipping point)	18.00 to 18.50
Chicago	20.25 to 20.75
Eastern Pennsylvania	23.00 to 23.50
New York (dealers)	18.50 to 19.00
St. Louis	17.00 to 17.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	16.00 to 16.50
Boston (consumers)	17.50 to 18.00
Buffalo, iron	16.00 to 16.50
Buffalo, steel	17.00 to 17.50
Chicago, iron	17.50 to 18.00
Chicago, steel	18.25 to 18.75
Cincinnati	12.50 to 13.00
Eastern Pennsylvania	18.00 to 18.50
New York iron (dealers)	14.50 to 15.00
Pittsburgh, iron	18.50 to 19.00
Pittsburgh, steel	20.00 to 21.00
St. Louis, iron	17.25 to 17.75
St. Louis steel	17.50 to 18.00

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 18.00
Boston	19.00 to 19.50
Buffalo	16.50 to 17.00
Chicago, No. 1 machinery	18.75 to 19.25
Chicago No. 1 railroad or agricultural	17.75 to 18.25
Cincinnati No. 1 Machinery cupola (net tons dealers)	17.50 to 18.00
Cleveland, cupola	17.50 to 18.00
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.00 to 18.50
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	16.50 to 17.00
San Francisco, delivered	20.00 to 21.00
Seattle	18.00
St. Louis, railroad	16.50 to 17.00
St. Louis, agricultural	16.25 to 16.75
St. Louis, machinery	18.50 to 19.00
Valleys	18.00 to 18.50

HEAVY CAST

Boston	17.50 to 18.00
Buffalo (breakable)	15.50 to 16.00
Cleveland	13.00 to 13.50
Detroit (automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	14.00 to 14.50
Pittsburgh	15.50 to 16.00

MALLEABLE

Boston, railroad	19.50 to 20.00
Buffalo	19.00 to 19.50
Chicago, agricultural	16.50 to 17.00
Chicago, railroad	17.75 to 18.25
Cincinnati, railroad (dealers)	14.50 to 15.00
Cincinnati, agricultural (dealers)	16.00 to 16.50
Cleveland, agricultural	18.50 to 18.75
Cleveland, railroad	18.00 to 18.50
Detroit	15.50 to 16.00
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	19.50 to 20.00
St. Louis, agricultural	14.50 to 15.00
St. Louis railroad	15.50 to 16.00

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	17.50 to 18.00
Boston (dealers)	13.50 to 14.00
Buffalo	17.00 to 17.50
Chicago	16.50 to 17.00
Cleveland	17.25 to 17.50
Eastern Pennsylvania	18.50 to 19.00
New York	14.50 to 15.00
Pittsburgh district	19.50 to 20.00
St. Louis	17.50 to 18.00

LOCOMOTIVE TIRES

Chicago, No. 1	18.00 to 18.50
Chicago, cut	18.50 to 19.00
St. Louis, No. 1	17.00 to 17.50

LOW PHOSPHORUS PUNCHINGS

Chicago	17.00 to 17.50
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	20.00 to 21.00

Scrap

Decline Continues and All Markets Are 50 Cents Lower—Supplies Are Heavy

LACK of support is evident in the iron and steel scrap market and heavy offerings, with easy delivery, press heavily. Most grades have yielded under this load. Dealers are not inclined to speculate on this situation. The Pennsylvania railroad is offering 64,773 tons, a large accumulation even for this important seller. No sign has appeared to indicate a return of strength.

Chicago, Feb. 2.—Growing conviction that the market is headed for an extended decline, arising partially from an evident oversupply and the continued buyers' strike, has culminated in the most drastic reduction in iron and steel scrap prices in a half year. Practically all grades have lost 25 cents to $1 and there is some warrant for even lower prices. Dealers seem to have reached the conclusion higher prices are a vain hope for the time being and have sold heavily, some short. Heavy melting steel is down $1. A melter bought at $14.50 and then at $14.25 and is now out of the market; a week ago dealers were trading in steel at better than $15. Dealers have bought miscellaneous rails at $16. Cast borings are being refused by one melter at $13. Malleable is the only important grade to resist cutting.

Boston, Feb. 2.—Iron and steel scrap prices have yielded further to listless buying. Most dealers have marked off about 50 cents a ton on steel grades. Pennsylvania steelworks have lowered their offers and no improvement in buying is in sight.

New York, Feb. 2.—Except borings and turnings, all grades of scrap are off 25 to 50 cents a ton. This is a reflection of slack demand and the weak tone that has prevailed since the middle of last month. Steel for Bethlehem has declined another 50 cents dealers now offering $15.50, delivered, for railroad steel.

Philadelphia, Feb. 2.—Buying of iron and steel scrap is small, trading being principally among dealers. Prices are weak and large dealer stocks are pressing the situation.

Pittsburgh, Feb. 2.—Sales of heavy melting steel scrap made recently to Midland, Pa., Weirton, W. Va., and some other points are believed to have touched the bottom of the market on the recession which started two or three weeks ago. Each of the sales is understood to involve a total of 5000 to 10,000 tons. Other sales of various grades have been made in much smaller tonnages and in some instances declines of 50 cents to $1 per ton have been made. The Pennsylvania railroad is offering 64,773 tons of scrap for early bids.

Buffalo, Feb. 2.—Weakness is shown by most grades of scrap this week. No consumer would pay more than $17 for heavy melting steel, it is believed, and some may have bought odd lots for less. Practically all materials are fractionally lower, except borings and turnings which are fairly steady, with good demand. Quotations are largely nominal in the absence of tonnage transactions.

Detroit, Feb. 2.—Buying of iron and steel scrap continues limited. Large consumers are waiting and orders are few.

Cincinnati, Feb. 2.—Weakness characterizes the iron and steel scrap market here. Users are not interested in offerings and dealers are making no effort to force sales. Many mills are holding up shipments because of congestion in their yards.

St. Louis, Feb. 1.—Iron and steel scrap continues weak. Consumers, particularly steel mills, refuse to become interested and will not name prices at which they will buy. The most marked weakness appeared in steel specialties, which were cut from 50 cents to $1 per ton. Rails were lower, and further declines were recorded in malleable. Cast grades were relatively steadier than other groups of items. Railroad offerings included 500 tons of car wheels by the Frisco, 1000 tons of rails for rolling and 1700 tons of other material by the Big Four, 4246 tons by the Chicago, Burlington & Quincy, 35,000 tons by the Pennsylvania and 118 cars by the Missouri Pacific. Industrial offerings included 2 cars by the Standard Oil Co. from its Woodriver refinery.

Birmingham, Ala., Feb. 1.—Weakness prevails in iron and steel scrap and steel grades are affected more than cast. Quotations have eased. Melters are holding up deliveries a little as hope of lower iron prices appears.

Cleveland, Feb. 2.—Iron and steel scrap continues exceedingly quiet in this district. Consumers are not buying beyond what is absolutely necessary, dealers finding it difficult to dispose of material. Price appears to be no consideration, melters simply not being interested. Quotations are unchanged but largely nominal.

Sheets

Miscellaneous Orders Increase, With Automotive Buying Light —Operations Continue Heavy

WHILE general buying of sheets by the automobile manufacturers is lacking, demand for all other grades is fairly active. Pittsburgh mill operations are maintained at 80 to 85 per cent despite the lack of automobile tonnage which in a year averages about one-third of their business. A large Michigan motor car builder placed full finished tonnage at 4.30c to 4.35c.

SHEET PRICES, PAGE 248

Pittsburgh, Feb. 2.—Sheet orders last week increased at least 10 per cent over the week preceding, and while this betterment was insufficient to bring about higher operating schedules, these latter were at least maintained on the 80 to 85 per cent average basis of the week before. Manufacturers as well as jobbers have figured among the buyers and almost every grade is included. Some attractive automotive business is included although it is admitted that general buying by the automobile companies has not as yet started for the reason that efforts still are being made to bring the price down from 4.50c to 4.40c. When it is considered that automotive tonnage represents about 30 to 33 1/3 per cent of sheet manufacture, and sales of this material have been practically absent for some time past, it is apparent that general sheet demand has been good since average operations of 85 per cent have been maintained. Several buyers of full finished sheets are unwilling to place orders with those manufacturers who took business from a large Michigan automobile maker at 4.30c or 4.35c. Some claim they should have the same figure and state that the maximum they will pay is 4.40c. A number of these are about to divide their tonnage among the makers who are not recipients of the Michigan automobile maker's business and are maintaining the 4.50c figure. One order for galvanized sheets is reported taken at a concession under the 4.60c price, and one or two small lots of black have been moved at slight concessions under the 3.35c figure. Generally speaking, however, market prices are held.

Boston, Feb. 2.—Brisk trading in galvanized and black sheets is reported by one of the leading producers. Prices are firm and inquiry is fair. Total sales of the week probably exceeded those of the previous week.

Philadelphia, Feb. 2.—Specifications for first quarter and new orders for sheets have improved considerably. Eastern mills continue to operate practically full. Black sheets are easy at 3.25c to 3.35c, Pittsburgh. Blue an-

nealed and galvanized sheets are 2.50c and 4.60c, respectively.

Buffalo, Feb. 2.—Heavy sales of sheets have been made within the past ten days and on some sizes mills are booked for 90 days. Reports of price cutting are discredited by the fact that some of the larger consumers have bought recently at 3.35c, Pittsburgh, for black and 4.60c for galvanized. Sales assure capacity mill operation in this district throughout the quarter, it is believed.

Youngstown, O., Feb. 2.—Acceleration in the buying demand for sheets anticipated about three weeks ago has failed to materialize. The mills, however, are able to maintain district operation of 85 per cent and this would be on a higher basis but for mechanical difficulty at one plant. The situation has changed during the past three weeks and instead of specifications being plentiful the volume has depreciated to the place where weekly rolling schedules are difficult to determine over three or four days in advance. In a few instances consumers have taken in black tonnage below current quotations but investigation discloses the business involved was placed during fourth quarter before prices were advanced and had not been fully specified. In view of the hand-to-mouth basis of the market, prices display unusual firmness, black being quoted at 3.35c, blue anneal 2.50c and galvanized 4.60c. One transaction involving blue anneal tonnage this week was closed at 2.60c. High grade mills report a good volume of specifications from automobile and metal furniture customers and are maintaining full operating schedules. Here and there weak spots in the market are heard but a checkup shows that the full price of 4.50c for No. 22 gage is being quoted by most producers. Many consumers of full finished sheets continue to delay placing full requirements in anticipation of a lower market.

Chicago, Feb. 2.—Western makers of sheets are taking pains to spike a spreading belief that the price situation is less satisfactory. They contend that while specifications are slow and valley makers are not disposed to meet western mill prices, no difficulty is encountered in getting 4.75c, Chicago, for galvanized, 3.50c for black and 2.65c for blue annealed. The position of blue annealed sheets is more satisfactory than that of galvanized and black. Western sheet mills are operating at about 85 per cent.

Tin Plate

Specifications Cover Two Months' Heavy Demand—Price Steady

TIN PLATE PRICES, PAGE 348

Pittsburgh, Feb. 2.—While a large part of the tin plate now being rolled undoubtedly will be utilized for food packs early in the next quarter, no small portion is for the general line cans. Demand for the latter has been exceptionally good. While generally, the ratio is about 50-50 between food packing cans and other cans including general line cans, the present ratio is about 60-40. Specifications are heavy, makers having more than they can produce in the next two months. April specifications are not due until Feb. 15 and some of these are commencing to drift in. The market price is $5.50.

Strip Steel

January Best Month in Two Years—Prices Are Firm

STRIP PRICES, PAGE 348

Pittsburgh, Feb. 2.—Strip makers have closed the banner month in the past two years as far as hot and cold-rolled shipments are concerned. Based on the improvement of the past week or 10 days, the outlook is satisfactory. Incoming business for January was slightly below that of the preceding month due to a falling off in hot strip orders. The present high strip demand is much diversified. Prices are firm at 3.90c on cold and 2.30c on hot.

The American Society for Steel Treating has just issued to its members three new sets of data sheets. Set *A*-6*a* shows the physical constants of the principal alloy-forming elements and is reprinted from *Science of Metals* by Zay Jeffries and R. S. Archer. Recommended practices for the carburizing and heat treatment of gears and camshafts are specified in sheets *R*-15 and *R*-19, respectively.

Pipe

Expect Oil Country Goods to Aid Buying—Cast Pipe Demand Involves Heavy Lots

DEMAND for oil country goods is expected to bring back pipe mill operations to a higher basis. Jobbers are accumulating stocks, but are minimizing inventories as much as possible. Cast iron pipe is unusually active, awards including 3000 tons for Milwaukee, 2500 tons for Boston and many smaller lots. Chicago quotations are firmer.

PIPE PRICES, PAGE 348 AND 382

Pittsburgh, Feb. 2.—Numerous orders, although for small tonnages, are being placed for tubular goods. Jobbers are replenishing stocks although apparently they do not plan to carry stocks as large as formerly and will continue to have the mills carry the burden. The outlook is bright for widespread building in 1926, so that the potential demand for standard full weight merchant pipe is heavy. Prospects are encouraging for increased demand upon oil country goods. Oil production is low, oil prices are high, and 1926 consumption of gasoline, oil, etc., will be heavier than ever if the expectations of the automobile manufacturers are only 25 or 50 per cent realized. Tubular goods prices are firm, except on seamless tubes, boiler tubes, etc.

Boston, Feb. 2.—New England municipalities are slow to issue specifications for 1926 pipe requirements, but heavy tonnage is in sight. Boston awarded 2500 tons of 8 to 30-inch pipe to the United States Cast Iron Pipe & Foundry Co. Prices are firm except in the large sizes where from $1 to $3 a ton concessions are made.

New York, Feb. 2.—Cast pipe demand continues chiefly for private account. Municipal inquiry is somewhat improved, but still is taking but a relatively small portion of the tonnage placed. Prices continue steady, with most shops in this district substantially booked ahead. Export inquiry for cast iron pipe includes 1200 tons for Peru and three lots aggregating about 1000 tons for Cuba.

Chicago, Feb. 2.—Bookings of cast iron pipe have been heavy for the season. With the Milwaukee tonnage out of the way, the market has stiffened and it is claimed that $41 to $41.50, Birmingham, or $49.20 to $49.70, delivered Chicago, covers a majority of quotations for 6-inch and larger.

CONTRACTS PLACED

4600 feet, 6-inch, class C, water pipe, Eau Claire, Wis., to W. H. Hobbs Supply Co., that city, at $42 per ton, and specials at $110 per ton, f.o.b. Birmingham.

3000 tons, Milwaukee, Wis., to Glamorgan Pipe & Foundry Co.; 125 tons of fittings to American Cast Iron Pipe Co.

2500 tons, 8 to 36-inch, Boston, to United States Cast Iron Pipe & Foundry Co.

1400 tons, 6 and 12-inch pipe, Wayland, Mass., to the Warren Foundry & Pipe Co.

700 tons, Lima, O., to National Cast Iron Pipe Co.

600 tons, Malden, Mass., to the Warren Foundry & Pipe Co.

300 tons, pipe for new sewage disposal plant, Madison, Wis., to United States Cast Iron Pipe & Foundry Co. at $21,358.

250 tons, Northampton, Mass., to unnamed maker.

200 tons, Sandusky, O., to National Cast Iron Pipe Co.

200 tons, fittings, Boston, to Davis Foundry Co., Lawrence, Mass.

CONTRACTS PENDING

28,336 feet, 6 to 16-inch mains, valves and fittings, for Towson, Md.; bids in.

3700 tons, 3 to 36-inch pipe for St. Louis;

bids Feb. 4.
900 tons, Harvey, Ill.; bids in.
700 tons, Toledo, O.; bids shortly.
500 tons, corrugated iron pipe for new water system, Oswego, Oreg.; C. E. Torkelson, low bidder.
300 tons, water pipe, Quincy, Mass.; bids asked.
250 tons, 6 and 8-inch, Springfield, Mass.; bids close Feb. 8.
150 tons, water pipe, Elmira, N. Y.; bids asked.

Bolts, Nuts, Rivets

Improvement Shown In Orders and Shipments Is General

NUT AND BOLT PRICES, PAGE 348

Chicago, Feb. 2.—The comeback in bolt and nut specifications since Jan. 1 has been encouraging and with prices being maintained, bolt and nut makers feel the market is on a firm foundation. Export business in implements promising well, the outlet for bolts and nuts in this direction should be widened. Western bolt and nut works are operating at about 70 per cent of capacity. Small rivets are quoted at 70 and 10 to 70 and 5 off, while large machine bolts are unchanged at 50, 10 and 10 off.

Pittsburgh, Feb. 2.—Orders continue to manifest improvement in nuts, bolts and rivets. Not only are they more numerous, but larger tonnages are involved. As yet, makers are not measureably increasing operations, remaining on a 70 per cent average basis, but an increase will be necessary if February keeps up the betterment shown late in January in incoming orders. January was the best month in three years and orders still are coming in at the same ratio. Prices are unchanged on the basis of 50, 10 and 10 off for large machine bolts, and 2.50c to 2.60c on rivets.

Cleveland, Feb. 2.—Quotations on bolts, nuts and rivets are firm and shipments are fairly steady. Large rivets, however, show some seasonal slowness. The leading rivet interest continues to operate five days a week. The automobile trade is taking a good quantity of bolts and nuts but demands are not pressing Large machine bolts continue at 50, 10 and 10 per cent off list.

Change Cement Nail Base

Cleveland, Feb. 2.—Effective Feb. 1, the distribution of cement-coated nails will be in standard 100-pound kegs, instead of count kegs, as briefly announced in the Jan. 28 issue of IRON TRADE REVIEW. A new card of extras has been adopted, and the old 1.85c base price has been changed, cement-coated nails now being quoted the same as bright wire nails, 2.65c, base Pittsburgh and Cleveland, plus the new extras. Extras range from 25 cents to $2.20 per 100 pounds. For annealing or barbing, where these special features are not mentioned in connection with the description of the nail, 25 cents per keg is added for annealing or barbing, and 15 cents per keg for side points, needle points, long square points, oval heads or extra large heads.

Bars

Buying and Orders Still Heavy, Though Less Active—Prices Are Firm—Specifications Fair

SOFT steel bars continue to lead finished steel, though some seasonal recession has come, bringing bookings down to an equality with shipments at Chicago and lessening the volume of new bookings in other centers. This tendency seems to be wearing off. Prices are unchanged, though some buyers are holding off in the hope of a lower quotation.

BAR PRICES, PAGE 348

Chicago, Feb. 2.—Consumption of finished steel in the immediate Chicago district continues at a high rate. Specifications are outrunning shipments. Illinois Steel Co. has had to put on another stack at South Chicago and deliveries have fallen back somewhat, to five weeks on small soft steel bars for example. But incoming business is not quite up to expectations and orders about equal shipments, whereas recently they were a fair distance ahead of shipments. Consumers seem more disposed to go slow in committing themselves. For this reason severe competition of Pittsburgh producers close to the doors of Chicago may be responsible. The level of 2.10c, Chicago, apparently is firm for the immediate Chicago territory but does not hold good a great distance east or south of Chicago. One maker states his order book and costs warrant an advance of $2 for the second quarter but Pittsburgh competition is a barrier. Both the automotive and the implement industries are maintaining theri high rates of consumption. From the pure consumption tion. From the purely consumption standpoint conditions in Chicago territory are probably slightly better than a month ago but the price situation has made buyers cautious.

Both rail steel and bar iron continue unchanged at 2.00c, Chicago, with incoming business fair. Seasonal business, like fence posts, is accounting for a good proportion of rail steel business.

Boston, Feb. 2.—A marked increase in specifications on steel bar contracts has developed at Boston. One of the leading eastern mills reports sales of the week in New England double the previous week. The price is firm at 2.00c, Pittsburgh or 2.365c delivered. Expansion in inquiry is reported.

Philadelphia, Feb. 2.—Steel bar specifications improved during late January until that month nearly equaled December for some mills. The price is firm at 2.00c, Pittsburgh, in practically all cases, though shading is done occasionally. Iron bars are steady at 1.90c, Pittsburgh.

Pittsburgh, Feb. 2.—Merchant steel bars occupy possibly the most favorable position in finished steel. Operations are as near 100 per cent as they ever arrive, and mills commenced 1926 with large specifications. While these dropped off early in January, they have picked up. January tonnage is somewhat disappointing but indications are that it will improve. Some deliveries of certain popular sizes of rounds are now dated in March. Considerable spot buying of small lots is being done and in some cases 2.10c has applied. The regular market however, is firm at 2.00c.

Cleveland, Feb. 2.—A steady flow of tonnage in the form of specifications and occasional new business is coming to the mills from bar consumers in this territory. Tonnage is large and surprisingly well maintained. The total for January received by a Cleveland sales office showed a further gain over December which was a large month. Some mills are still able to make relatively prompt delivery. Prices are steady at 2.19c, Cleveland or 2.00c, Pittsburgh.

Hoops and Bands

Diversified Demand Makes Active Market With Mills Full

HOOP PRICES, PAGE 348

Pittsburgh, Feb. 2.—Hoops and bands, continue in popular demand from diversified lines of manufacture. A typical day's shipments were divided as follows: Three carloads, automotive industries; one carload each to talking machine, telephone, electrical switch box, adding machine, cash register, door hardware, window frame and trunk fitting manufacturers. Operations of narrow strip mills are practically full, and the price 2.50c is exceedingly firm.

Cold Finished Steel

Makers Find Situation Pleasing Except for Low Price

Pittsburgh, Feb. 2.—With the possible exception of price, 2.50c being considered too low, present cold-finished bar business is highly satisfactory to producers. Operations are at 80 to 85 per cent; specifications are increasing and new orders are more numerous from diversified lines. Within the past few days, automotive demand has improved, with augurs well for first quarter. Buyers are not ordering far ahead as they realize that cold-finished capacity is extensive.

Structural Shapes

Subway Work at New York and Railroad Activity Feature Awards—25,000 Tons Pending at Cleveland—Prices Unchanged

AWARD of 6000 tons for subway construction and 3000 tons for railroad bridgework in the New York district feature business placed during the past week. The Union Terminals project at Cleveland, requiring about 25,000 tons of steel for present development, is the highlight of pending work. Bids have been closed on 18,000 tons for the tower building. At Chicago, a hotel and auditorium will require 11,500 tons. General loft, apartment and commercial buildings are less active.

Plain material prices are unchanged although sporadic efforts are made to establish a higher price. Material fabricated and erected still is weak in the Pittsburgh district, and variable elsewhere.

STRUCTURAL SHAPE PRICES, PAGE 348

New York, Feb. 2.—Subway work again features the local structural market, a leading contract involving 6000 tons. Railroad activity also is a feature. A large contract calls for 3000 tons of bridgework for the New York Central. Commercial work, such as lofts, apartments, etc., is confined largely to inquiry. Much of this work is held up pending settlement of the wage question in the building trades. Shapes continue around 1.90c, Pittsburgh on the more sizable contracts.

Philadelphia, Feb. 2.—Shape demand is somewhat less but not sufficiently so to make much difference in eastern mill operations. Prices are unchanged and range from 1.85c to 2.05c, base eastern mill and 1.80c to 2.00c, Pittsburgh.

Boston, Feb. 2.—Structural awards are quiet but new projects are numerous. Prices are reported firmer. The bulk of the week's tonnage was placed at 1.90c, but a growing amount is commanding 2.00c, Pittsburgh.

Pittsburgh, Feb. 2.—Local shape fabricators continue to manifest considerable disappointment over the price situation, claiming that $60 per ton and even less has been done on material fabricated and delivered. Structural mills continue to operate around 85 per cent on the average although backlogs are light. Plain material still is quoted at 1.90c to 2.00c.

Chicago, Feb. 2.—Fabricators are crowded with work for spring delivery. New work includes 6500 tons for a sport auditorium and 5000 tons for a hotel in Chicago. Fabricators have been better buyers of plain material from the mills the past few days, but in view of the ability of the mills to make fairly prompt delivery are not carrying heavy stocks. Beams are 2.10c, Chicago, in the immediate Chicago territory but are the least strong of the heavy finished steel products.

Cleveland, Feb. 2.—Awards of structural steel tonnages are small. Inquiries are increasing and better activity is expected in late February. About 25,000 tons of steel for the current requirements of the Union Terminals project features the local market. Bids went in Feb. 1 on 18,000 tons for the tower building. A theater and office building at Toledo to require 8000 to 10,000 tons is talked of. Plain material prices are steady at 2.09c to 2.19c, Cleveland, or 1.90c to 2.00c, Pittsburgh.

Awards Compared

	Tons
Awards this week	29,145
Awards last week	22,825
Awards two weeks ago	17,396
Awards this week in 1925	45,575
Average weekly awards, Jan.	21,498
Average weekly awards, 1926	21,498

CONTRACTS PLACED

6000 tons, subway section 5, Route 105, New York, placed through Heyman & Goodman, general contractors, to the American Bridge Co.

3500 tons, loft, Eighth avenue and Thirty-sixth street, New York, to Levering & Garrigues Co.

3000 tons, bridgework for the New York Central railroad, to the Mt. Vernon Bridge Works.

2675 tons, are involved in the following five contracts:
- Bank, 104 West Seventy-seventh street, New York, to Bethlehem Fabricators Inc.
- Theater, 165th street, New York, to Post & McCord.
- Office building, Far Rockaway, Long Island, N. Y., to the Lehigh Structural Steel Co.
- Loft, 254-6 West Thirty-first street, New York, to the Lehigh Structural Steel Co.
- Factory, Proctor & Gamble, Port Ivory, Staten Island, to the Lehigh Structural Steel Co.

1400 tons, Clark-Monroe building, Chicago, to American Bridge Co.; Frank D. Chase Inc., 720 North Michigan avenue, Chicago, architect. This is in addition to 1400 tons previously placed for this job.

1400 tons, electrification work for the Long Island railroad, New York, to Bethlehem Steel Corp.

1200 tons, Point stadium, Johnstown, Pa., to the McClintic-Marshall Co.

1000 tons, apartment, Eastern Parkway and Underhill avenue, Brooklyn, N. Y., to A. E. Norton Inc.

1000 tons, concentrator for United Verde Copper Co., Clarksdale, Ariz., to McClintic-Marshall Co.

1000 tons, Gillespie Dam bridge, Phoenix, Ariz., to Virginia Bridge & Iron Co.

800 tons, addition to plant at Eddystone, Pa., for Baldwin Locomotive Works, to McClintic-Marshall Co.

750 tons, apartment West End avenue, New York, to the Hinkel Iron Construction Co.

600 tons, nurses home, John Hopkins university, Baltimore, to a local fabricator.

550 tons, Pennsylvania railroad bridges, to the McClintic-Marshall Co.

500 tons, garage, Syracuse, N. Y., to the Union Structural Co.

450 tons, transit shed, berth A and B, Los Angeles, to McClintic-Marshall Co.

400 tons, coal bunker, Providence, R. I., to Lehigh Structural Steel Co.

400 tons, National Exchange bank, Milwaukee, to Worden-Allen Co.

350 tons, Juberri store building, Penn avenue, Pittsburgh, to the McClintic-Marshall Co.

300 tons, Coplin theater and office building; Buffalo; R. S. McMannus Steel Construction Co.

270 tons, plant addition for Stearns & Foster Co., Cincinnati, to Southern Ohio Iron Works.

215 tons, gymnasium for Washington university, St. Louis, to St. Louis Structural Steel Co.

200 tons, warehouse for A. M. Castle Co., San Francisco, to Brode Iron Works.

200 tons, mixing plant for West Coast Fertilizer Co., Tampa, Fla., to the Austin Co.

200 tons, shaft sets for Montreal Mining Co., Hurley, Wis., to American Bridge Co.

175 tons, bridgework for the New York Central, to the American Bridge Co.

162 tons, store and office building for Joseph H. Dickman Real Estate Co., St. Louis, to Atlas Iron Works.

125 tons, plant, Trenton, N. J., to the American Bridge Co.

123 tons, through plate girder span for Rock Island railroad at Victor, Iowa, to American Bridge Co.

100 tons, plant for Dreses Machine Tool Co., Cincinnati, to the Austin Co.

100 tons, addition to Allied Steel Castings Co., West Harvey, Ill., to Gage Structural Steel Co.

Unnamed tonnage, 14-story apartment, 820 Park avenue, New York, to the McClintic-Marshall Co.

Unnamed tonnage, loft, West Twenty-ninth street, New York, to the Hedden Iron Construction Co.

CONTRACTS PENDING

18,000 tons, tower building, Union Terminals project, Cleveland; bids in.

8000 to 10,000 tons, office and theater building, Toledo, O.; project contemplated.

6500 tons, sport auditorium, Chicago, by owners of Dreamland Athletic club, 1701 West Van Buren street, Chicago; contemplated.

5000 tons, 22-story hotel at South Wabash and East Harrison streets, Chicago. Hegeman-Harris Co., 431 North Michigan avenue, Chicago, contractor.

3000 to 5000 tons, Hunter Dulin building, San Francisco; general contract to Lindgren & Swinerton. Steel bids to be called for shortly.

4500 tons, towers for expansions of lines of Niagara, Lockport & Ontario Power Co., Buffalo; pending.

3000 tons, Eagle street viaduct, Union Terminals project, Cleveland; new bids asked.

3000 tons, Hotel Detroit, Detroit; bids in.

1100 tons, building for Metropolitan Electric Co., Reading, Pa.

1000 tons, hotel, Portland, Me.; preliminary bids being taken.

1000 tons, 15-story apartment for Joseph

Seigel, 27-35 West Eighty-sixth street, New York; pending.
1000 tons, apartment for Joseph Seigel, at 17-25 West Eighty-fifth street, New York; pending.
1000 tons, high school, Johnstown, Pa.; second lot of bids to be opened Feb. 15.
1000 tons, Buckeye Bank building, Columbus, O.; D. W. McGrath Construction Co. awarded general contract.
850 tons, Grant building, San Francisco; bids being taken.
800 tons, Braley theater, Toledo, O.; pending.
700 tons, hotel, Fort Meyer, Fla.; pending,.
500 tons, highway bridge, Paterson, N. J.; pending.
380 tons, Synagogue, West 185th street near St. Nicholas, New York; pending.
Several hundred tons, Cushman bakery addition, 165th street and Clay avenue, New York; pending.
250 tons, theater, Hartford, Conn.; pending.
200 tons, Euclid Epworth Methodist Episcopal church, Cleveland; Craig-Curtiss Co. awarded general contract.
175 tons, aeronautical school, New York university, New York; bids asked.
170 tons, Siletz River bridge, Lincoln county, Oreg.; Gilpin Construction Co. low bidder on general contract.
150 tons, waterworks building, Dayton, O.; bids in.
150 tons, Elmhurst school, Oakland, Calif.; bids in.
150 tons, Society for Savings bank, Hartford, Conn.; bids asked.
150 tons, Denora, Pa., high school; bids being compiled.
150 tons, theater, Charlotte, N. C.; pending.
140 tons, addition to Prescott school, Oakland, Calif.; bids opened.
100 tons, Y. M. C. A. building, Portland, Me.; bids being taken.
100 tons, Avalon, Pa., high school; bids being compiled.
Tonnage unstated, new garage building, William Penn Garage Co. Inc., Pittsburgh; bids about to be asked.
Tonnage unstated, four 380-foot span bridge across Pond d'Orelle river, at Newport, Wash.; plans approved, bids to be taken this spring.
Tonnage unstated, S. B. and A. Ware apartment, Ocean Parkway, Brooklyn, N. Y.; pending.
Tonnage unstated, Hollenden hotel annex, Cleveland; Craig-Curtiss Co. awarded general contract.
100 tons, Mehan garage, Seattle, to Pacific Coast Steel Co.
100 tons, Western New York road project, to unstated Buffalo fabricator.
100 tons, Gillespie Dam bridge, Phoenix, Ariz., to unnamed interest.
100 tons, Montour railroad improvements, including four small concrete bridges near Imperial, Pa., to the John F. Casey Co.

CONTRACTS PENDING

2000 to 3000 tons, pens for Union Stock Yard & Transit Co., 38 South Dearborn street, Chicago; pending.
2500 tons, sewage disposal plant, Akron, O.; Walsh Construction Co. low on general contract.
2500 tons, foundation work for Union Terminals project, Cleveland; pending.
350 tons, Y. M. C. A. building, Portland, Me.; bids being taken.
125 tons, plant for Certainteed Products Co., Philadelphia; pending.
120 tons, apartment, Lansdowne, Pa.; pending.
150 tons, Fidelity Mutual Life Insurance Co. building, Philadelphia; pending.
100 tons, Pennsylvania hospital building, Philadelphia; pending.
100 tons, Mount Sinai hospital, New York; pending.
100 tons, building, Little Falls, N. Y.; pending.

Concrete Bars

Larger Tonnages Active as Market Quickens — Road Builders Start Buying

STRENGTHENED by inquiries for larger tonnages, the concrete bar market shows more activity than since early December. A project at Chicago will take 2000 to 3000 tons and three in Ohio 6300 tons. Road builders are entering the market, covering into the second quarter at Buffalo. Prices are steady and unchanged. Sales from warehouses also are increasing.

REINFORCING BAR PRICES, PAGE 348

Chicago, Feb. 2.—After several weeks of quietness the reinforcing bar market displays a tendency to expand. The Union Stock Yard & Transit Co. is placing between 2000 and 3000 tons for concrete pens. About 1200 tons are required for another section of the South Water street double decking project, Chicago; this contract being reported awarded to Kalman Steel Co. The market on billet reinforcing bars is 2.60c, Chicago warehouse, and on rail steel bars 2.00c.

Pittsburgh, Feb. 2.—Reinforcing concrete bar orders are numerous but small. The contract for another unit of the Toronto, O. power plant has been let involving 950 tons of concrete bars and 225 tons of steel castings. Concrete bars continue at 2.00c to 2.10c.

Boston, Feb. 2.—Mills report heavier sales of concrete bars to dealers and warehouses. Awards of the week have been few but numerous projects are in sight. Boston warehouse price ranges from 3.00c to 3.10c.

Buffalo, Feb. 2.—Several 100-ton lots of reinforcing bars are pending and at least one of similar size has been closed. Prices quoted on mill shipment lots are 2.265c and on truck delivery tonnages 2.75c is asked. Road builders are disposed to cover first and second quarter requirements now.

Cleveland, Feb. 2.—Concrete bar sellers in this district booked small tonnages last week. Inquiries involve small lots. Pending work totals in excess of 7000 tons, but action is delayed in closing. New billet bar prices are steady at 2.19c to 2.30c Cleveland, although an attractive tonnage would cause keen competition and shading. Rail steel is unchanged at 1.80c to 1.90c, mill.

Awards Compared

	Tons
Awards this week	4,130
Awards last week	5,900
Awards two weeks ago	6,045
Awards this week in 1925	11,591
Average weekly awards, Jan.	4,342
Average weekly awards, 1926	4,342

CONTRACTS PLACED

1200 tons, another section of South Water street double decking project, Chicago, to Kalman Steel Co.
950 tons, another unit for the power plant of the Ohio River Edison Co., Toronto, O., to Dravo Contracting Co.
500 tons, Melrose apartment, Chicago, to Calumet Steel Co.
500 tons, Proctor & Gamble Co. buildings at Port Ivory, Staten Island, N. Y., to Concrete Steel Co.
300 tons, Western Hills high school, Cincinnati, to Bourne-Fuller Co.
200 tons, Aronson building, San Francisco, to unnamed jobber.
155 tons, building for Public Service Co. of Northern Illinois at Waukegan, Ill., to Jones & Laughlin Steel Corp.; Bates & Rogers Construction Co., 37 West Van Buren street, Chicago, general contractor.
125 tons, stadium, Newark, N. J., to Fuller Bros. & Co.
150 tons, Central Plaza apartment, Chicago, to Calumet Steel Co.
150 tons, Camlin apartments, Seattle, to Pacific Coast Steel Co.

Directors Settle Claim Against Trumbull Steel

Settlement of all stockholders' claims against directors of the Trumbull Steel Co., Warren, O., who were associated with the former president, Jonathan Warner, was effected at Cleveland, Feb. 1 at a formal hearing before Chief Judge Homer D. Powell, on petition of two Cleveland women stockholders. They alleged negligence of duties by officers and directors in permitting Mr. Warner to conduct the company's affairs in an irregular manner.

The original complaint alleged financial irregularities involving a total of $1,300,000. Joint answers denying many of the alleged irregularities were filed by Philip Wick, A. N. Flora, W. M. McFate, S. Livingston Mather, W. G. Mather and John T. Harrington. They denied negligence in that they elected Jonathan Warner president, and claimed they exercised due diligence and care in attending meetings and in financial supervision. When they discovered that shares of Trumbull stock had been issued irregularly without their knowledge or consent they demanded and obtained from Mr. Warner repayment of large amounts of real and personal property. They denied paying excessive bonuses, salaries or unwarranted dividends.

Similar answer was filed by the Cleveland-Cliffs Iron Co., Cleveland, which owns equally with Trumbull Steel Co. the common stock in the Trumbull-Cliffs Furnace Co.

Directors named in the petition, except Jonathan Warner, agree to pay into the Trumbull Steel Co. treasury $425,000 in full settlement of all claims of the Trumbull stockholders and of all such litigation. The directors are to be given that amount in the guaranteed dividend warrants of the Trumbull company. Mr. Warner already has paid back $2,500,000.

Rails, Cars

Western Roads Dominate Car Activity—Track Material Bookings Good—Prices Steady

INQUIRY for railroad freight cars during the week totaled 2800. In the Chicago district total inquiry is now 10,000 cars. Awards are small and scattered. Locomotives also are less active, inquiries and orders being few. Track accessory buying continues large, 18,000 to 20,000 tons being closed at Chicago. Southern plans 1600 car repairs.

RAILROAD TRACK MATERIAL PRICES, PAGE 348

Chicago, Feb. 2.—Freight car awards to Chicago district builders in January totaled 5700, out of a total of about 8455 placed in the United States. Pending inquiry approximates 10,000, including 5041 refrigerator for the Pacific Fruit Express, 1100 box and 500 general service cars for the Southern Pacific, 2300 gondolas and general service for the Illinois Central, 770 hopper bodies for the St. Paul, 500 hoppers for the Chicago & Eastern Illinois, 400 tank cars for the North American Co. and 300 gondolas for the Chicago & Western Indiana. The Rock Island is expected to have a formal inquiry out shortly. One purchasing agent has been attempting to place a number of cars without competitive bidding, but his price has been too low for Chicago car builders.

Between 18.000 and 20,000 tons of track fastenings was placed in this district last week. Railroad specifications for both rails and track material are so heavy every indication points to an unusually good maintenance year. Taking heavy tonnage so early in the year forecasts a secondary buying movement of good proportions.

New York, Feb. 2.—Car buying again is comprised of relatively small contracts, while inquiry remains restricted. Locomotive inquiry involves two switch engines for the Akron, Youngstown & Canton and one locomotive tender for the Carnegie Steel Co. The Southern Pacific contemplates purchase of 23 locomotives. Locomotive buying is comprised of small orders.

New York Central has exercised its options on purchase of additional rails, and has awarded 51.745 tons as follows: 22.200 tons to Bethlehem Steel Co.; 20,145 tons to Illinois Steel Co.; 4700 tons to Inland Steel Co. and 4700 tons to Carnegie Steel Co. This makes a grand total of 206,745 tons for its 1926 requirements, having closed on the original tonnage as announced in the Oct. 29 issue of IRON TRADE REVIEW.

Philadelphia, Feb. 2.—Norfolk & Western is in the market for 2500 tons or 500,000 tie plates. Southern railroad is planning purchase of materials for rebuilding 1600 gondolas in its own shops, the Lenoir Car Works. The Seaboard also is figuring on a number of car repairs.

Pittsburgh, Feb. 2.—Orders for 100 locomotive tenders, each with a water capacity of 13,000 gallons, have been placed with the Baldwin Locomotive Works by the Pennsylvania as announced in IRON TRADE REVIEW, Jan. 28. The new tenders will be used with heavy freight locomotives to reduce, through their enlarged capacity, the number of stops for water to a minimum.

Pittsburgh district makers of light rails are receiving only a few small orders each week, mostly from the coal mining industry at $36 per ton.

Track accessory prices continue unchanged.

ORDERS PLACED

Bang Construction Co., six air dump cars, to the Pressed Steel Car Co.
Gulf, Mobile & Northern, 12 dump cars, to the Pressed Steel Car Co.
Henry Vaugh, 10 air dump cars, to the Pressed Steel Car Co.
Missouri Pacific, 50 gondolas, to Pressed Steel Car Co.
Roxana Petroleum Corp., 400 tank cars, to the American Car & Foundry Co.
Tela railroad, 50 banana cars, to the Magor Car Corp.
Wabash, five automobile box cars, to the American Car & Foundry Co.
Philadelphia Rapid Transit Co., 50 service cars, to J. G. Brill Co.

LOCOMOTIVE ORDERS PLACED

Edward Hartman, one locomotive, to the Baldwin Locomotive Works.
Lehigh Valley, one Diesel-electric switch engine, to McIntosh & Seymour Corp.
North River Coal & Wharf Co., a switch engine, to the Baldwin Locomotive Works.
Percatu E de F, Brazil, four locomotives, to the Baldwin Locomotive Works.
Tennessee Coal, Iron & Railroad Co., two switch engines, to the Baldwin Locomotive Works.
Four unnamed interests, one locomotive each to American Locomotive Co.

ORDERS PENDING

Andes Copper Mining Co., 25 tank cars; pending.
Anglo-Chilean Nitrate Co., 60 quarry cars; pending.
Atchison, Topeka & Santa Fe, 18 coaches; contemplated.
Chicago & Eastern Illinois, 500 hoppers; pending.
Chicago & Western Indiana, 300 gondolas; pending.
North American Co., 400 tank cars; pending.
Seaboard Air Line, unstated number, car repairs; contemplated.
Southern, 1600 car repairs; figuring for its own shops.
Southern Pacific, 40 passenger cars; contemplated.
Southern Pacific, 1100 box and 500 general service cars; pending.

Wire

Steady Buying in All Lines and Prices Are Holding—Fencing Business Awaited

WHILE expectations of early buying in nails and wire have not been realized, considerable orders are being booked and business is satisfactory. Shading formerly met in the East seems to have disappeared. Fencing demand is relied on to give better volume shortly. Production continues unchanged in all districts. Manufacturers continue to specify well on plain wire.

WIRE PRICES, PAGE 348

Chicago, Feb. 2.—Specifications for wire and wire products are slightly improved they can not be called encouraging and the gain since Jan. 1 has not reached expectations. Automotive interests are not expected to improve their specifying until after the Chicago automobile show this week. Plain wire is quoted at 2.55c, Chicago or western mill and wire nails 2.70c.

Boston, Feb. 2.—Nail prices have stiffened at Boston, concessions below 2.65c having disappeared. Wire production has declined slightly. Improved inquiry is reported. Plain wire is unchanged at 2.875c Boston.

Philadelphia, Feb. 2.—Makers of nails formerly making a price of 2.60c, Pittsburgh, are refusing to shade 2.65c, Pittsburgh and the market is steady at this figure.

Pittsburgh, Feb. 2.—Some wire products makers note a distinct improvement over December. To others, buying has been disappointing since it has not shown the measure of increase expected after inventory. However, a fair number of mixed and straight carload orders for nails have come through. In connection with the latter, some southern West Virginia buyers who had a 2.60c Pittsburgh base figure on nails indicate that this price has disappeared since they now are sending in their orders at the regular 2.65c base figure. Fencing business is developing slowly but prospects are bright for heavy buying for spring. Plain wire is 2.50c and specifications from manufacturers are fair. Wire mill operations are 60 to 65 per cent.

Buffalo, Feb. 1.—Future bookings of wire have been extended and are considered good. Prices have been fairly steady. Buffalo mill operation is estimated at 90 per cent of capacity.

Nonferrous Metals

Some Activity Noted But Market for Most Part Is Quiet—Copper Firmer and Zinc Shows Signs of Steadiness

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Straits Tin, N. Y.	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
Jan. 27	14.00	14.12½	13.25	61.12½	9.25	9.10	8.05	27.00	22.00	35.00
Jan. 28	13.97½	14.12½	13.25	61.12½	9.25	9.10	8.00	27.00	22.00	35.00
Jan. 29	14.00	14.12½	13.25	60.75	9.25	9.10	8.00	27.00	22.00	35.00
Feb. 1	14.00	14.12½	13.25	62.12½	9.25	9.12½	8.02½	27.00	21.75	35.00
Feb. 2	14.00	14.12½	13.45	62.12½	9.25	9.12½	8.05	27.00	21.75	35.00

NEW YORK, Feb. 2.—Buying of nonferrous metals has been quiet for some time but now and then a spot of activity occurs. Tin has had some bright spots and lead has held well. Copper is a little firmer after easiness, and zinc has shown signs of steadiness after the most weakness shown in many months. Exports continue light and European conditions are against sustained firmness.

Rolled products.—Brass mill products were cut ¼ cent a pound Jan. 29 and now are back close to the levels of last summer. Nickel silver was included in the change, but copper products, except tubing were not cut. Copper wire has had good business lately but buying of other mill products has been slow. Zinc was a factor in lowering brass prices.

Copper.—Some business has been done at 14.00c delivered the past few days after a few sales recently went a little less, reported to be mostly 13.95c. Producers have shown much firmness at prices under 14.00c, but users have kept out of the market when sellers tried to get higher than that figure. Little metal has been available outside of producers' hands.

Zinc.—When prime western touched 8.00c, East St. Louis it had declined nearly 1 cent from the top touched last November, and as the ore market had not fallen accordingly, smelters showed much resistance. At the same time the premium was eliminated from prompt, so that it was nominally the same as futures, and on Monday with a little inquiry from galvanizers after a period in which they stayed away from the market, it looked as if prompt might still be had from some smelters at this figure but some others were slightly firmer on futures. This switch is due to the change from a tight situation in supplies to a little accumulation of stock.

Tin.—This metal was quiet a few days ago while the London market was dropping but at the end of the week business began to pick up and then with a much stronger statistical position revealed by the January report on supplies and shipments to users, the market became strong on Saturday and Monday.

Lead.—Use continues large in this country but supplies are large in Europe just now, so the market here is between influences that on many days are opposite. In the past few days the foreign market has looked a little firmer and so a price cut was avoided just as it appeared almost certain.

Aluminum.—The light metal has been steady but buying quiet. Users are well covered on contracts.

Iron Ore

New York, Feb. 2.—Cranberry Furnace Co., Cranberry, Tenn., maker of low phosphorus pig iron is reported to have bought another cargo of foreign low phosphorus iron ore. The Reading Iron Co., which was expected to buy some foreign ore for its Thomas Iron Co. furnace at Hokendauqua, Pa., has not yet taken action.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	18.87½
Copper, hot rolled	22.50
Zinc, ga. 9 to 17	12.00
Lead full sheets (cut ¼c more)	13.00 to 13.50
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	23.50
Copper	24.25
RODS	
High brass (round ⅝ to 2½-inch)	16.62½
Naval brass	19.37½
WIRE	
Copper	16.00 to 16.12½
High brass	19.87½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.00
Chicago	9.50
Cleveland	9.00 to 9.25
HEAVY YELLOW BRASS	
New York	7.00
Chicago	8.25
Cleveland	7.00 to 7.25
ZINC	
New York	5.25
Cleveland	4.75 to 5.00
HEAVY COPPER AND WIRE	
New York	11.75
Chicago	11.50
Cleveland	11.00 to 11.25
RED BRASS BORINGS	
New York	8.25
YELLOW BRASS TUBING	
Cleveland	7.25 to 7.50
LIGHT COPPER	
New York	9.50
Chicago	9.75
Cleveland	9.75 to 10.00
LIGHT BRASS	
Chicago	7.50
Cleveland	6.25 to 6.50
ALUMINUM	
Borings, Cleveland	14.00 to 15.00
Cast	18.00 to 19.00
Clippings	21.00 to 22.00

Secondary Metals

Remelt aluminum No. 12	24.00 to 25.00
Brass ingot	11.50 to 12.25

Coke By-Products

Prices Are Steady—Demand For Naphthalene Brisk

New York, Feb. 2.—Demand for light oil distillates is slightly easier, although still good for this season of the year. Virtually prompt delivery is available.

Prices are unchanged with 90 per cent benzol holding at 24 cents works in tanks and 29 cents in drums; pure benzol at 23 cents works, in tanks and 28 cents in drums; toluol and solvent naphtha at 35 cents works, in tanks and 40 cents in drums and commercial xylol at 26 cents in tanks and 21 cents in drums.

Naphthalene continues steady at 7 cents works in flakes in tank lots, and 8 cents for balls. A brisk demand prevails for spring delivery. Phenol is quoted at 22 cents works.

Following the revision last week, the export market on sulphate of ammonia is holding steady at $2.70 to $2.75, port, in double bags. Domestic prices are holding at that range, delivered.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.23	.....
Toluol	0.35	.....
Solvent naphtha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22

Per Pound at Producers' Plants

Naphthalene flakes	0.07
Naphthalene balls	0.08

Per 100 Pounds Delivered

Sulphate of ammonia	$2.72½

Indian Iron in Imports

Philadelphia, Feb. 1.—Following are the importations of iron and steel at this port for the week ended Jan. 30: 1945 tons pig iron, Germany; 1850 tons pig iron, England; 1643 tons pig iron, Calcutta; 768 tons pig iron, Strassbourg; 4000 tons manganese ore, E. India; 5010 tons manganese ore, British West Africa; 35 tons ferromanganese, England; 10 tons iron ore, Scotland; 64 tons hoop steel, England; and 150 tons steel billets, Sweden.

Coast Selling Steady

Better Volume of Movement and Prices Are Steadier—
Small Tonnages Continue To Rule

SAN FRANCISCO, Jan. 30.—(*By Air Mail*)—The volume of business is gradually increasing and a firmer tone is noted in prices. Of importance was the second annual conference of the Iron, Steel and Allied Industries of California, at Del Monte, Jan. 22 to 23. Approximately 150 delegates were in attendance. The formation of the Reinforcing Steel Institute of California, by bar jobbers of California, and the filing of applications for membership in the Concrete Reinforcing Steel institute by ten California companies were some of the features of the conference.

Pig Iron and Coke

Foundry operations have improved somewhat but are still below normal. Certain plants are operating almost at capacity while others, and these comprise the majority, have only enough work in hand to keep them going from day to day. No large orders for pig iron or coke were reported placed and as far as can be ascertained current sales were confined to small lots. Prices remain unchanged from those quoted last week.

Coast Pig Iron Prices

Columbia basic	$27.00 to 28.00
Columbia, No. 2 Fdry., San Francisco and Los Angeles	27.00 to 28.00
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del. S. F.	25.50
Anzan No. 1 (Chinese) 2.50 to 3.50 sil. Del. L. A.	26.00
Anzan Sil. 4.00, ex-dock Seattle	23.50
Anzan Sil. 4.00, f.o.b. Portland	22.75
*Dutch	24.00
*Indian iron	24.25
*Belgian	24.00
German	24.00
*English (2.75 to 3.75 sil.)	25.00 to 26.00

*C.I.F. duty paid.

Bars, Plates and Shapes

Although merchant bars have been practically firm at 2.35c c.i.f., reinforcing bars have been decidedly weak and it is reported that 2.40c was quoted in several instances. Abnormally low out-of-stock prices which have been quoted are expected gradually to disappear. Concrete awards of the week totaled only 300 tons. The majority of the business being booked at present involves lots of less than 60 tons.

Demand for cold-rolled shafting is fair but most of the going business has been limited to carload lots or less. Prices are firm at 2.50c base Pittsburgh or equivalent.

Specifications against bolt, nut and rivet contracts have increased and the outlook is bright. Prices on small rivets range from 70 and 10 to 70, 10 and 5 off. All the larger producers of bolts and nuts are holding to the basis of 50, 10 and 10 off but one or two smaller concerns have recently quoted an additional 10 off. On large rivets the market appears firm at 2.55c to 2.60c base Pittsburgh, with an occasional 2.50c price on a large, attractive inquiry.

While rumors are still heard of a 2.25c c.i.f. price on plates, 2.30c is the lowest that can be verified. It is generally agreed that if a lower c.i.f. price than 2.30c can be obtained it is due to the consumer being able to get a better rate than the steamship conference charge of 30c. Only one award was reported. This involved 100 tons for dredge pipe for Rio Vista, taken by the Pacific Coast Engineering Co. Pending business calls for over 6600 tons, the newest inquiry involving 1600 to 1900 tons for a pipe line at Portland, bids on which will be opened Feb. 3.

Shape awards aggregated over 2600 tons and included 1000 tons for a concentrator for the United Verde Copper Co. at Clarksdale, Ariz., 1000 tons for the Gillespie Dam bridge at Phoenix and 450 tons for a transit shed at Los Angeles. Pending business is in excess of 10,000 tons. The largest project involves about 5000 tons for the Hunter Dulin building in San Francisco, the general contract for which has just been let to Lindgren & Swinerton who will call for bids on the steel soon. Prices are firm at 2.35c c.i.f. In connection with the award of 6640 tons for the city hall in Los Angeles, placed with McClintic-Marshall Co., the price on plain fabricated material was $98.90 per ton and on built-up sections, $112.10 per ton.

Other Finished Material

During the past two weeks awards of cast iron pipe have involved only lots of less than 100 tons. Demand is quiet, less than 1000 tons being up for figures. Bids were opened today on 246 tons for Santa Cruz, Calif. Demand for standard pipe is fairly active. Crane Co. was low bidder on 470 tons of 8-inch Matheson Joint pipe for Los Angeles. Upland, Calif., will open bids Feb. 4 for 225 tons and Los Angeles will take bids Jan. 29 for 750 tons.

Will Install Automatic Tinning Equipment

Officials of the McKeesport Tin Plate Co. have authorized the Aetna Foundry & Machine Co., Warren, O. to equip the McKeesport plant with mechanical hot mill doublers and automatic tinning machines. Similar equipment recently was built for the Weirton Steel Co. A description of the mechanical doubler was presented in the July 20, 1922 issue of the IRON TRADE REVIEW and a description of the automatic tin pot feeder was in the Feb. 19, 1925, issue.

Pig Iron Market Easier

(*Concluded from Page* 349)

second quarter iron at $21, base. Last week's sales were about equal to present inquiry. Sixteen furnaces of 21 in the district are making iron.

Chicago, Feb. 2.—A little second quarter inquiry for northern foundry and malleable iron has appeared but the market as a whole continues inactive. Most melters have covered well for the first quarter and nothing has developed either in a price or a consuming way to impel second quarter coverage at this time. Efforts to shade $23, Chicago furnace, for No. 2 foundry and malleable iron have failed; one inquiry for 1500 tons still is hanging fire for this reason. The coal strike has assumed greater proportion marketwise the past few days and one Iroquois stack has been blown out. This leaves two Iroquois, two Federal, one Mayville, the Thomas stack at Milwaukee and the Zenith stack at Duluth active. A Chicago melter is inquiring for 1000 tons of foundry for the second quarter and a western Michigan foundry has a similar inquiry out.

Cincinnati, Feb. 2.—Few inquiries for pig iron are pending. While the market appears to have weak spots, prices are firm. Northern iron is quoted $21, Ironton base, for second quarter and southern iron $22 to $23 Birmingham, the latter quotation applying to the product of the Alabama furnaces. The largest recent sale was 1000 tons of northern foundry iron purchased by a Dayton, O., melter. The Worthington Pump & Machinery Corp., has revised its inquiry for its Elmwood, O., plant and now is inquiring for 1325 tons of northern foundry and bessemer iron.

St. Louis, Feb. 1.—After some activity during the third week of January, the pig iron market is quiet again. Sales are small and inquiry last week covered less than 1500 tons. The melt is being well maintained, and in the last week of January was at the highest point in several months. The market is quotably strong, though absence of business makes actual values difficult to determine. No. 2 southern is $23, Birmingham, but a Tennessee maker is quoting $22 for second quarter. Chicago furnaces quote $23, but doubtless $22 could be done on northern iron. The leading local producer is quoting $23.50 to $24, f.o.b. Granite City, but is understood to be in a position to meet competition that may develop with the opening of books of other furnaces for second quarter business.

Birmingham, Ala., Feb. 1.—Sales of pig iron for delivery during the second quarter are small, but furnace interests are confident that the demand will warrant active operations through the first half. Quotations are $22 to $23, with the lower price predominating. Large interests are beginning to make inquiries. Shipments are equal to production.

European Orders Are Larger

San Francisco Firm Places 70,000 Boxes of Tin Plate for Delivery to the Argentine—American Inquiry for Pig Iron Improving—Finland Buys 18,000 Tons of Rails—Tin Plate Syndicate Operative Feb. 8

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Feb. 2.—(*By Radio*)—American orders again figure conspicuously in the British market. A San Francisco firm has ordered 70,000 base boxes of Welsh tin plate for delivery to a consumer in the Argentine. Inquiry from the United States for British pig iron is improving and a fair volume of business continues to be done. The market for pig iron is firm, especially in the Barrow district where most of the American inquiries are being received.

Competition from continental steel mills is decreasing, and more orders for rails for export are being received by British makers. Merchants are restocking with material from domestic mills. The Welsh tin plate manufacturers' pooling system will be in operation Feb. 8, it is announced.

Business in France continues satisfactory, although export demand is lighter. Some sales of semifinished material have been closed with British consumers. Prices are firm.

Orders for 18,000 tons of rails have been placed with Belgian and German works by railroads in Finland. Societe John Cockerill, at Seraing near Liege, and Societe Anonyme des Acieries d' Angleur, near Liege, received 7500 tons, while the German firm, Stahlwerks Verband, booked 10,500 tons.

British Steel Gain Holds as Buying Grows

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., Jan. 25.—The iron and steel improvement is standing up fairly well against conditions applying rather severe tests. The northeastern district seems to be the most favorably situated in regard to pig iron, having maintained its recent advances, with keenness exceeding any time during the past 12 months at least. The furnaces have sufficient business to absorb their output until the end of February and are disinclined for contracts running beyond that date, in view of the uncertain fuel position.

Sterling—$4.86

December production indicates a slow recovery, the output being 503,400 tons against 494,100 tons in November. The furnaces at work continue at 141, six restarted being balanced by a similar number put out of action.

In the steel trade, the large unemployed capacity is an effectual barrier to price advance. It is computed that, even now, the Middlesbrough district is employed about half capacity. A moderate stimulus has been given by orders for rails by the London & North Eastern railway, 20,000 tons having been divided between Middlesbrough works and 6000 tons with Steel, Peach & Tozer and its subsidiary company, Samuel Fox & Co. and 4000 tons to Cammell Laird. The rail mills are so powerful that the total requirement could be met in a week or two but production will

(*Continued on Page* 370)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, February 1	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		Francs		Francs		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$17.05	3 10 0*	$15.42	410	$15.47	340	$17.05	3 10 0
Basic	16.31	3 7 0	15.42	410	15.47	340	15.10	3 2 0
Basic-bessemer	18.77	3 17 0†	14.85	395	14.56	320	17.05	3 10 0
Hematite, Phosphorus 0.02-0.05	20.45	4 4 0	19.74	525	.....	...	18.26	3 15 0
SEMIFINISHED STEEL								
Billets	$26.79	5 10 0	$21.81	580	$21.61	475	$24.35	5 0 0
Wire rods	42.03	9 0 0	28.58	760	28.89	635	28.00	5 15 0
FINISHED STEEL								
Standard rails	$35.31	7 5 0	$25.19	670	$26.85	590	$31.66	6 10 0
Merchant bars	1.49c	6 17 6	1.17c	690	1.17c	570	1.18c	5 7 0
Structural shapes	1.33c	6 2 6	1.07c	630	1.07c	520	1.08c	4 18 0
Plates, ship, bridge and tank	1.55c	7 2 6	1.20c	705	1.22c	590	1.32c	6 0 0
Sheets, black, 24 gage	2.22c	10 5 0	2.21c	1,300	2.31c	1,120	2.59c	11 15 0
Sheets, galvanized, 24 gage, corrugated	3.56c	16 7 6	3.23c	1,900	4.53c	2,200	3.74c	17 0 0
Bands and strips	2.28c	10 10 0	1.36c	800	1.49c	725	1.54c	7 0 0
Plain wire, base	2.39c	11 0 0	1.96c	1,150	1.75c	850	1.71c	7 15 0
Galvanized wire, base	3.04c	14 0 0	2.65c	1,560	2.27c	1,100	2.04c	9 5 0
Wire nails, base	3.15c	14 10 0	2.21c	1,300	1.85c	900	1.93c	8 15 0
Tin plate, base box 108 pounds	$ 4.57	0 19 6	.....	...	.....	...	$ 6.57	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$16.80	3 9 0	$14.85	395(2)	$14.79	325	$19.55	85
Basic pig iron	16.31	3 7 0	14.66	390(1)	14.11	310	20.24	88
Furnace coke	3.92	0 16 0	5.38	143	5.69	125	5.06	22
Billets	26.79	5 10 0	21.06	560	21.61	475	27.37	119
Standard rails	1.68c	7 15 0	1.04c	610	1.18c	575	1.48c	142
Merchant bars	1.55c	7 2 6	1.12c	660	1.22c	590	1.34c	128
Shapes	1.41c	6 10 0	1.04c	610	1.16c	565	1.37c	131
Plates, ship, bridge and tank	1.57c	7 5 0	1.33c	780	1.30c	630	1.48c	142
Sheets, black, 24 gage	2.33c	10 15 0	2.30c	1,350	2.17c	1,055	2.14c	205
Sheets, galvanized 24 gage, corrugated	3.58c	16 10 0	3.32c	1,950	4.58c	2,225	3.55c	340
Plain wire	2.39c	11 0 0	1.74c	1,025	1.75c	850	1.78c	171
Bands and Strips	2.28c	10 10 0	1.24c	730	1.55c	750	1.59c	152

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 15s 6d ($3.77) f. o. b. Ferromanganese £15 5s 0d ($74.27) f. o. b. German ferromanganese £14 0s 0d ($68.18) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semifinished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg, and German are for basic-bessemer steel.

Machinery

January Sales Below Expected Level But February Starts Out With a More Active Market—Used Tools Enjoy Good Demand

ON THE whole January proved disappointing to the machine tool and equipment industry with sales considerably below those of December. During the last week, however, inquiries have been more numerous and have given ground to a feeling that February will prove a good buying month. Thus far, no one industry appears to be providing the bulk of demand and specifications are for small lots, in most cases, single machines. Deliveries seeming to be somewhat easier last week are tightening up as the demand grows. Railroads, which a few weeks ago gave promise of unusual activity, at the present are doing little buying and in some districts are entirely out of the market. Used tools are moving well, with prices remaining firm.

New York, Feb. 2.—The new month finds machine tool builders with a substantial volume of inquiry before them. There are few large lists, but rather a good volume of small miscellaneous inquiries from both industrial concerns and railroads. This is regarded as a reflection of stable conditions through industry generally. Bethlehem Steel Corp., previously noted as in the market for several machine tools for its Johnstown, Pa., plant has placed an axle lathe with Niles-Bement-Pond Co. This buyer also has purchased some additional wire making machinery from Joseph T. Ryerson & Son, for its Sparrows Point plant. Pennsylvania Car Co. has purchased from the Niles company, an axle lathe, a car wheel borer, and a 400-ton wheel press. Oakland Motor Car Co., Detroit, has closed on a 15-inch crank slotter to the same builder. General Electric Co. continues a buyer, having recently closed on two automatics, two stub lathes; two turret lathes; and an internal grinder. It is also understood that the company purchased a cylindrical grinder and other equipment.

Boston, Feb. 2.—Sales have dropped off during the past week, but the total for the month runs well ahead of December sales and present inquiry points to an active February. General Electric Co. bought a special lathe and some other equipment for its Pittsfield, Mass., plant. Boston & Albany railroad closed on part of a list of five tools and is expected to purchase the balance during the coming week. A Rhode Island printing machinery manufacturer bought several tools. Other sales were mostly single tools. Tool manufacturers in the district are operating close to capacity. One manufacturer of grinding machinery is unable to quote except for delivery after April 1. Demand for used tools has been relatively quiet. A recent auction sale, however, shows that prices remain fairly firm.

Pittsburgh, Feb. 2.—Numerous tool inquiries being developed are from interests who are endeavoring to lower costs and increase quality of their output. Naturally these inquiries are slow to turn into orders but occasional sales are made of single items. Miscellaneous inquiries are increasing from diversified lines of manufacture, but the main list of size is that of Westinghouse Electric & Mfg. Co., on which buying probably will start this week. Supplies are active and small electrical tool orders are numerous, such as drill presses, grinders, woodworking machinery, etc. Pittsburgh Crucible Steel Co. may buy machine tools later after revamping its mill equipment. Several other steel companies in this district also are prospective purchasers. Pennsylvania railroad wants a machine tool for Toledo, O., territory, and the Pittsburgh & Lake Erie railroad has not yet closed on its 100-inch boring mill. Norfolk & Western railroad has just ordered a motor-driven swing saw, completing its recent buying activity.

CRANE ORDERS PLACED

Two 25-ton electric cranes for F. De Bellgarde Inc., Stoneyard, Astoria, N. Y., to Shaw Electric Crane Co.

Two caterpillar cranes for Jobson & Gifford, New York, to McMyler-Interstate Co.

Two 75-ton overhead cranes with 10-ton auxiliaries for San Joaquin Light & Power Co., Fresno, Calif., to Cyclops Iron Works.

Two overhead cranes, one 75-ton and other 5-ton for Great Western Power Co., to Cyclops Iron Works.

Among single orders were: 10-ton crane for West Leechburg Steel Co., to Northern Engineering Works; 3-ton overhead crane for Concrete Products Co., Pottstown, Pa., to Northern Engineering Works; 3-ton floor controlled crane for Ft. Wayne, Ind., plant of General Electric Co., to Whiting Corp.; 5-ton handpower crane for Hercules Powder Co., Wilmington, Del., for installation at Brunswick, Ga., to unnamed builder; 17-ton crane equipped with 2-horsepower hoists, for Jessup & Moore Paper Co., Wilmington, Del., placed through Morton C. Tuttle Co., Boston, with Whiting Corp.; 20-ton used locomotive crane with 2-yard bucket for Annville Foundry Co., Annville, Pa., to Philip T. King; 3-ton handpower crane for Frank Tracy, New York, to A. D. Granger Co.; 2-ton overhead crane for West Virginia Pulp & Paper Co., for Mechanicsville, N. Y., to Shaw Electric Crane Co.; 22½-ton locomotive crane for Frank L. Burns Coal Co., New York, to McMyler-Interstate Co., which is in addition to two other cranes placed by the same company with the same builder; 20 ton locomotive crane for scrap dealer in Harrisburg, Pa., to Browning Crane Co.; 20-ton locomotive crane for Sims Contracting Co., Philadelphia, to Browning Crane Co.; 20-ton locomotive crane for Chateaugay Ore & Iron Co., Lyon Mountain, N. Y., to Browning Crane Co.; 15-ton gantry crane for Missouri Pacific to Shaw Electric Crane Co.

CRANE ORDERS PENDING

Two overhead cranes, one 5-ton and other 10-ton capacity, for Tyler Tube & Pipe Co., Washington, Pa.; bids asked.

Pile driving machine for Erie railroad, to be placed shortly.

Chicago, Feb. 2.—Railroad inquiry continues to dominate the machinery market. Through Battey & Kipp, Florida East Coast railroad is inquiring for a 6-foot radial drill, 26-inch drill, three 12-inch grinders, turret lathe, 44-inch driving box boring mill, 3-foot heavy duty radial drill, two single spindle sensitive drills, two heavy-duty vertical drills, 500-pound power hammer, 100-ton hydraulic press, 2000-pound steam hammer, 400-ton wheel press, 10-inch bending roll, two tube cutting machines, heavy flanging clamp, superheater flue welder, flue swedger, insulation cutter, coil winder, tapping machine, electric welder and 1-ton electric hoist. Chicago & North Western has added a No. 3 miller and a drill with a 45-inch table. International Harvester Co. continues to place a few tools. The Universal Portland Cement Co. list is not active. Illinois Central has given no indication of action on its recent inquiry for Paducah, Ky. Considerable business has been closed in the past few days.

Cincinnati, Feb. 2.—Tool builders here are experiencing a steady run of orders, mostly for single units. While the activity is not unusual, users are manifesting more interest in the market and many of the inquiries which have been pending for months are now being closed. The bulk of the current business is coming from manufacturers, the railroads being virtually out of the market. Plant operations are on the increase and this is indicated by the fact that machine tool builders are buying more liberally in raw materials.

Cleveland, Feb. 2.—Equipment sales have been considerably better during the past week than at any time during the month and February made a good start. It is doubtful if the total business done in January was better than half that of December. Both manufacturers and dealers report inquiries more numerous with no one industry predominating. Sales of used tools are particularly brisk and some houses are unable to maintain stocks. Reeves Mfg. Co., Dover, O., is in the market for a wiring press, a flywheel press, a horning press and two 30 or 36-inch power squaring shears. Bunting Brass & Bronze Co., Toledo, O., will purchase a geared punch press.

German Steel Invades Capitol

Structural Shapes Going Into New Building for Congressional Library, While American Producers Protest Against "Dumping"

WASHINGTON, Feb. 2.—At the same time American iron and steel producers are seeking to invoke the antidumping law to prevent what is termed the dumping of German steel in this country, prospects appear that German steel is to be used in the building of a legislative structure in Washington.

In the construction of the new bookstack building for the northeast court of the Library of Congress, for which appropriation was made last year, it is understood a small tonnage of steel has been placed with a German mill. The contractor for this job is the Snead & Co. Iron Works, Jersey City, N. J. It is said that the purchase of additional German steel for the job is under consideration. The contract was awarded to the company for the entire structure, various parts of the work to be sublet. The bids submitted by eight companies ranged from $725,000 to $932,082. The Snead & Co. Iron Works was awarded the job on the bid of $725,000, which was lowest.

David Lynn, architect of the capitol building, who awarded the contracts, stated that he has not been informed thus far that German steel is to be used in the Library of Congress building, and that it would be unfortunate if this is the case, owing to the recent activity of foreign steel in the domestic market. It is held that this would establish an unfortunate precedent for the government. However, the government could take no action now, it is pointed out, as the contract has been awarded with the stipulation that the construction be completed within 15 months from the date of awarding the contract.

In the present job the contractor was given considerable latitude in the design of the structurals for the stacks and shelving going into this building, which is to conform in general with library shelving standards. A standard support column was proposed, consisting of an angle and sections but it is pointed out by officials here that the specifications, as also is the case in most other government construction contracts, did not call for domestic steel.

According to information here the material coming from the German mill includes light structural shapes, angles, channels, I-beams, tees, plates and bulb angles, to cost an average of about $1.68 per 100 pounds, delivered at Jersey City or Hoboken, which would be a little less than $16 a ton below current domestic quotations.

Other bidders on the Library of Congress job and their bids were: English Construction Co., New York, $784,000; Arthur L. Smith & Co., Washington, $795,000; Parsons & Hyman Inc., Washington, $818,000; Schneider-Spleidt Co., Washington, $829,000; Frank L. Wagner Co., Washington, $855,440; Matthew F. Kelley Co., New York, $888,750, and the Art Metal Construction Co., Jamestown, N. Y., $923,082.

Investigates Steel Dumping

The United States customers' service, on complaint of American steel producers against the importation of German steel, has started an investigation on charges of violation of the antidumping law of 1921, it was stated today. Complaint was made about a month ago, after which the customs office conducted a preliminary investigation. The customs office has decided to undertake a more comprehensive investigation which may be completed within about two months.

The antidumping act provides that if the secretary of the treasury, following an investigation, finds an industry in the United States is being injured or is likely to be injured by the importation of foreign merchandise, and that merchandise is being sold in the United States or elsewhere at less than its fair value, he shall make public these findings for the guidance of the appraising offices.

The law also provides for a special antidumping duty in an amount equal to the difference between the purchase price or exporter's sales price and the foreign market value, or in the absence of such value, then the cost of production.

The foreign market value is defined as "the price, at the time of exportation of such merchandise to the United States, at which such or similar merchandise is sold or freely offered for sale to all purchasers in the principal markets of the country from which exported, in the usual wholesale quantities and in the ordinary course of trade for home consumption, or if not so sold for home consumption, then for exportation to countries other than the United States, plus, when not included in such price, the cost of all containers and coverings and all other costs, charges and expenses incident to placing the merchandise in condition packed ready for shipment to the United States."

The cost of production is defined not only as the cost of materials and of fabrication or other process in the production, but the usual general expenses of not less than 10 per cent of such cost in the case of identical or substantially identical merchandise. It also must include the cost of packing and an addition for profit of not less than 8 per cent of the cost of materials and fabrication and the general expenses.

Trumbull Steel's January Broke All Records

Net income of the Trumbull Steel Co. for the year ended Dec. 31, was $1,575,570 after all charges except federal taxes. The net was equal after preferred dividends to $1.53 a share on the 574,108 shares of common stock. This compares with $2,243,888 or $2.46 a share on the 627,688 shares of common in 1924. The balance sheet has been rearranged and further adjustments made. Total assets are given as $48,825,559 of which $9,105,487 are current assets against $2,203,792 current liabilities. The report shows that the company has increased its depreciation charge from $50,000 to $70,000 monthly. The present board of directors was re-elected with the exception of Whitney Warner, of Cleveland, whose place was taken by B. A. Tompkins, vice president of the Bankers' Trust Co., New York. Officers were re-elected. Shipments in January broke all records with 43,192 tons of finished product. Production of steel ingots totaled 53,000 tons against 42,000 tons in December. Aggregate shipments in 1925 were 440,000 tons valued at $30,998,900.

January Iron Gain Is Small

Daily Average Increases 2.2 Per Cent Over December But Number of Active Furnaces At Month-End Shows Net Loss of 8—High Coke Market Causes Numerous Furnaces To Bank

MAKING a small gain over December, production of coke pig iron in January reached a level which on the basis of total output and daily rate was the second highest for any January in history. The operations of the opening month of 1925 stand as the record. Production during the month just passed was retarded by high prices for coke, a number of furnaces considering it advisable to bank until the situation has shown improvement. Active blast furnaces on the last day of the month totaled 226, against 234 on Dec. 31. As a result, the percentage of active furnaces, which had exceeded 60 per cent for the first time since last March, dropped from 60.7 per cent to 58.7 per cent at the close of January.

MONTHLY PRODUCTION

	1926	1925	1924
January	3,322,672	3,372,207	3,015,480
February	.....	3,214,067	3,073,619
March	.....	3,571,422	3,465,389
April	.....	3,211,235	3,226,107
May	.....	2,933,907	2,619,986
June	.....	2,679,045	2,022,836
Total 1st half..	3,322,672	18,981,883	17,423,417
July	.....	2,665,262	1,783,457
August	.....	2,707,171	1,882,986
August	.....	2,707,171	1,882,986
September	.....	2,725,885	2,053,617
October	.....	3,017,889	2,461,727
November	.....	3,023,257	2,514,979
December	.....	3,249,057	2,956,389
Total 2nd half....	.....	17,388,521	13,653,155
Grand Total	3,322,672	36,370,404	31,076,572

Pig iron made in January totaled 3,322,672 gross tons, which compared with the 3,249,057 tons of the preceding month, was a gain of 73,615 tons. This output was but 49,535 tons below the highest January production of 3,372,207 tons one year ago. On a daily basis, pig iron made in the month just passed represented 107,183 tons per day and made a gain of 2375 tons, or 2.2 per cent, over the 104,808-ton daily rate of December. Compared with the 108,781 tons per day of January, 1925, which was the highest January rate in history, the production of the past month was short by 1598 tons. In January pig iron was made at the rate of 39,150,000 tons per year, against an indicated annual rate of 38,200,000 tons in December, and represented 86.1 per cent of the record production of 124,790 tons per day in May, 1923.

Merchant pig iron made in January amounted to 709,642 tons and showed a gain of 44,961 tons over the 664,681 tons produced in December. On an average daily basis, merchant iron was made at the rate of 22,892 tons per day, which compared with the 21,441-ton daily rate of the previous month, was an improvement of 1451 tons, or 6.7 per cent. Nonmerchant or steelworks iron with a total of 2,613,030 tons made an increase of 28,654 tons over the 2,584,376-ton output of December. Reduced to a daily basis, this represented 84,291 tons per day, against the 83,367-ton rate of the preceding month.

Active Blast Furnaces

	In blast	Total	Per Cent
January	226	385	58.7
December	234	385	60.7
November	220	385	57.2
October	209	386	54.1
September	200	387	51.6
August	192	391	49.2

AVERAGE DAILY PRODUCTION

	1926	1925	1924	1923	1922
Jan	107,183	108,781	97,273	104,136	53,090
Feb.	.....	114,788	105,987	106,925	58,220
Mar.	.....	115,207	111,787	113,664	65,674
Apr.	.....	107,041	107,537	118,210	69,005
May	.....	94,642	84,515	124,790	74,495
June	.....	89,301	67,427	122,262	78,748
July	.....	85,976	57,531	118,860	77,517
Aug.	.....	87,328	60,741	111,254	58,408
Sept.	.....	90,862	68,454	103,917	67,466
Oct.	.....	97,351	79,410	101,375	84,827
Nov.	.....	100,775	83,832	96,373	94,870
Dec.	.....	104,808	95,367	93,952	99,468
Ave.	107,183	99,645	84,908	109,659	73,563

Blast furnaces operating on Jan. 31 totaled 226, against 234 on the last day of December. During the month 3 merchant stacks were blown in and 5 blown out or banked. Of the nonmerchant class, 3 were blown in and 9 blown out.

Furnaces blown in during January were: In Ohio: One Hubbard, Youngstown Sheet & Tube Co.; one Bellaire, Carnegie Steel Co.; one Anna, Struthers Furnace Co. In Pennsylvania: Colonial, Colonial Iron Co., Punxy, Punxsutawney Furnace Co. In Indiana: Gary No. 7, Illinois Steel Co.

Stacks blown out during the month were: In Ohio: Two River, McKinney Steel Co.; Upson, Bourne-Fuller Co.; Lorain No. 2, National Tube Co.; Anna, Struthers Furnace Co. In Pennsylvania: One Carrie and one New Castle, Carnegie Steel Co.; Clinton, Clinton Iron & Steel Co.; one Eliza, Jones & Laughlin Steel Corp.; Vesta, Lavino Furnace Co.; Claire, Edmund W. Mudge & Co. In Alabama: Ensley No. 3, Tennessee Coal, Iron & Railroad Co. In Illinois: South Chicago No. 4, Youngstown Sheet & Tube Co. In Indiana: Gary No. 8, Illinois Steel Co.

DIVISIONS OF PRODUCTION

1925	Merchant	Nonmerchant	Spiegel	Ferromanganese	Other ferro
Jan.	659,256	2,712,951	5,418	23,564	956
Feb.	661,415	2,552,652	4,910	19,796	848
Mar.	736,284	2,835,138	5,449	24,422	877
April	689,162	2,522,073	5,341	21,448	799
May	605,347	2,328,560	5,294	22,717	298
June	563,782	2,115,263	4,972	19,834	.....
July	609,741	2,055,521	5,074	16,614	.....
Aug.	588,330	2,118,841	4,940	18,818	.....
Sept.	569,219	2,156,666	5,162	18,381	140
Oct.	606,092	2,411,797	5,071	21,472	1,544
Nov.	638,214	2,385,043	6,370	27,202	1,665
Dec.	664,681	2,584,376	7,746	25,881	1,883
Total 1926	7,591,523	28,778,881	65,747	260,149	9,010
Jan.	709,642	2,613,030	7,746	32,934	1,607

JANUARY PIG IRON

	No. of stacks	No. in blast last day of month Jan.	Dec.	Total tonnage made Merchant	Nonmerchant	—Totals— Jan.	Dec.
Ohio	71	46	48	153,421	610,918	764,339	749,844
Pennsylvania	136	82	86	153,363	1,034,642	1,188,005	1,161,443
Alabama	38	25	26	121,293	124,103	245,396	255,316
Virginia	17	1	1	3,106	.....	3,106	4,100
New York	26	17	17	83,905	148,412	232,317	194,151
New Jersey	4	0	0	.....	.....	.....	.....
Illinois	25	15	16	103,613	163,850	267,463	283,154
Maryland	6	5	5				
Indiana	17	16	16	28,590	405,188	433,778	425,729
Colorado	4	3	3				
Wisconsin	5	2	2				
Kentucky	7	2	2				
Tennessee	14	3	3	15,685	54,133	69,818	62,925
Utah	1	1	1				
West Virginia	5	2	2				
Michigan	4	4	4				
Minnesota	3	2	2	33,504	42,659	76,163	76,885
Missouri	1	0	0				
Texas	1	0	0				
Spiegel and ferro—all states....	....	....	....	13,162	29,125	42,287	35,510
Total	385	226	234	709,642	2,613,030	3,322,672	3,249,057

Plan Cut of Concrete Bar Sizes

Conference of Producers, Distributors and Technical Organizations Authorizes Committee to Study Further Simplification—New Billet and Rail Bar Interests Clash—Annual Potential Saving $5,000,000 in Fewer Sizes

WASHINGTON, Feb. 2.—Question as to whether physical requirements of steel for reinforcing bars shall govern adoption of a few grades or a single grade for production in preference to steel analysis is expected to be considered in the survey planned by a committee that is to function as a result of the simplification meeting for concrete bars held here Jan. 26. A preliminary report of this meeting was presented in the Jan. 28 issue of IRON TRADE REVIEW.

The meeting was attended by about 50 representatives of rolling mills, consumers, distributors, technical and other interested organizations. E. F. Kenney of the Bethlehem Steel Co., proposed that specifications be based upon physical requirements of strains, stresses and use rather than analyses. This suggestion, was lost in the spirited debate over what grade or grades of new billet concrete reinforcing steel are most desirable.

Sharp divisions of opinion were expressed at the meeting representing to a large extent the conflicting views of makers and distributors of new billet bars and producers of rail steel bars. Some representatives of rolling mills and distributors of new billet bars contended that the purpose of eliminating some of the 57 specifications for this material should be confined to new billet steel and that it was not the object of the meeting to consider rail steel for concrete bars. Representatives of the rail steel bar industry opposed uniform specifications that would leave out of consideration rail steel bars.

Upon motion of George E. Routh Jr. of the Kalman Steel Co., Chicago, a resolution finally was adopted asking that a committee be named by W. Chattin Wetherill, head of the metals utilization committee of the department of commerce, with the help of the industry, to survey through the proper channels of production, distribution and consumption, what grade or grades of new billet reinforcing steel are most desirable. This committee is to take a referendum and report at a general conference to be held in Washington again about Oct. 1.

Mr. Wetherill, who presided at the meeting, read a number of communications from distributors and users indorsing the proposal for simplifying specifications. A. E. Lindau, chairman of the committee on grades of reinforcing steel and standard sizes of the Concrete Reinforcing Steel institute, pointed out that the simplification of specifications offers a potential saving of $5,000,000 yearly to the construction industry. He pointed out that 80 per cent of new billet steel for reinforcing bars now passes through warehouses. Elimination of specifications is demanded, he stated, because of the need for speed in deliveries to expedite construction. The problem of city storage room necessarily must be considered, he declared, with the growth in city construction. Indicated demand, Mr. Lindau said, calls for about 35 per cent for the structural grade of reinforcing steel, 55 per cent for the so-called intermediate grade and 10 per cent for the hard grade. He added that a difference in 2000 pounds in unit stress results in a saving of 10 per cent in reinforcing work.

R. Franham, of the Pennsylvania railroad, spoke in favor of two grades of reinforcing steel, one for general purposes and one for extra demands and special needs.

E. E. Hughes, of the Franklin Steel Works, Franklin, Pa., representing the Rail Steel Products association, raised the question as to what would be the result in times of stressed demand or runaway market if one grade is adopted. He added that engineerinng thought differs over the grades that might be called most desirable. He predicted some resistance to the proposed eliminations on the part of consumers. Discussing rail steel for reinforcing, Mr. Hughes said that "we save an expense of $6 a ton in handling charges by converting a waste material. Our method is an economic saving to the construction industry of the whole country." He said rail steel bars had been used successfully for 20 years.

D. C. Schonthal, of the West Virginia Rail Co., Huntington, W. Va., claimed the interest of the consumer might be best served by more than one grade, and that if specifications are confined to one grade a waste of surplus steel would occur in times when orders are scarce.

O. W. Irwin, of the Truscon Steel Co., Youngstown, O., pointed out that the elimination plans do not seek to put either structural steel or rail steel out of competition, but that three stock piles in warehouses are a handicap when one might suffice. The turnover in new billet steel averages six times yearly, he said, and when three grades are carried, it is fortunate for four turnovers to be made. He proposed that a single grade in accordance with the knowledge now available could be adopted and revisions made when further tests are completed. Secretary of Commerce Hoover in addressing the conference, commended the importance of seeking to eliminate waste in industry, and added that in this way agitation for legislation to regulate business can be averted.

Rail, Billet Bar Makers Clash in Illinois

Chicago, Feb. 2.—Preparation of specifications by the Illinois highway department permitting the use of rail steel bars in state-aid road construction is regarded by makers of rail steel as an important concession as first reported by IRON TRADE REVIEW, Jan. 28.

The understanding here is that rail steel bars have passed the highway department's tests and specifications allowing bids on rail as well as billet bars will apply at the next road work opening.

Although rail steel bars are quoted at 2.00c, Chicago, and billet bars for general construction work have been held at 2.60c, the possibilities for economy in the use of rail steel are not as great as indicated. Competition for billet bar road contracts have brought prices as low as 2.10c.

One billet bar seller believes the opening of road work to rail steel would relieve the pressure in general construction lines, where rail steel has taken most jobs involving 1000 tons or more the past year. If rail steel finds an outlet in road work, which is low priced, the tonnage available for the general market will be reduced to that extent, is the reasoning.

Rock Island Stove Co., Rock Island, Ill., is increasing its capital stock from $200,000 to $360,000.

Foreign Trade Data Analyzed

FEATURING American iron and steel foreign trade in 1925 was the increasing tonnage moving to Europe and the slight decline of United States shipments to Central and South America. Further analysis of statistics just released by the department of commerce, and following the data presented in IRON TRADE REVIEW, Jan. 28, reveals that shipments to some South American countries gained considerably in 1925 but that the total dropped.

Canada was the largest buyer, taking 614,661 tons, compared with 550,593 tons in 1924. Mexico dropped from 108,512 to 102,412 tons, and Cuba from 165,637 to 146,823 tons. Japanese imports of American iron and steel fell from 277,204 tons in 1924 to 132,674 tons in 1925, the largest decrease reported.

Argentina was the largest buyer among the South American group, taking 87,296 tons, compared with 55,388 tons in 1924. Colombian imports jumped from 39,288 to 77,336 tons. Brazil and Peru imports fell. France, Germany, Greece, Italy, Spain, Netherlands and Norway increased their imports in 1925 over 1924.

Exports of machinery in December gained slightly from the November total. Lathe exports gained from 142 in November to 177 in December, but milling machines dropped from 96 to 72. Boring and drilling machines gained from 69 to 89, bending and power presses from 35 to 67 and thread cutting and screw machines from 56 to 57.

IMPORTS AND EXPORTS
Gross Tons

	—1925—		—1924—	
	Imports	Exports	Imports	Exports
Jan.	77,065	141,714	26,677	249,126
Feb.	92,380	102,302	42,277	165,912
March	92,110	155,386	39,279	124,762
April	71,249	155,426	50,975	132,739
May	68,117	150,612	66,806	155,422
June	83,330	136,847	60,474	172,982
July	64,642	138,670	30,410	138,845
Aug.	68,489	188,963	44,928	138,670
Sept.	68,445	136,754	45,216	135,894
Oct.	80,163	141,817	40,877	158,553
Nov.	79,771	171,134	34,300	124,464
Dec.	98,400	142,209	69,281	129,465
Totals	943,240	1,762,571	556,281	1,805,064

Year	Imports	Exports
1923	734,734	2,009,141
1922	712,895	2,005,100
1921	135,825	2,150,276
1920	421,274	4,934,067
1919	322,264	4,397,295
1918	169,110	5,338,019
1917	330,201	6,465,053
1916	328,965	6,110,732
1915	282,896	3,582,564
1914	289,775	1,549,554
1913	317,260	2,745,635

DESTINATION OF IRON AND STEEL EXPORTS, IN DECEMBER, 1925
Gross Tons

COUNTRIES	Rails	Galvanized sheets	Plates not fabricated	Tin terne plate	Steel sheets black	Barbed wire	Steel bars
Argentina	....	493	....	397	20	793	....
Australia	....	154	....	....	....	183	188
Brazil	....	670	....	326	96	485	77
British South Africa	....	64	....	....	....	400	....
British India	....	1,353	....	1,311	....	....	....
Canada	171	1,751	8,701	1,578	3,571	92	5,896
Chile	3	351	....	1,161	....	63	203
China	....	19	....	303	54	....	82
Colombia	380	921	....	127	....	940	229
Cuba	1,973	981	50	391	18	391	204
Central America	294	356	99	....	....	399	....
Dominican Republic	....	....	....	....	....	....	76
Greece	....	....	....	1,068	....	....	....
Honduras	217	....	....	....	....	....	....
Hong Kong	....	....	....	69	....	....	....
Italy	....	....	....	203	....	....	....
Japan	221	176	12	2,609	6,849	....	7
Mexico	505	733	264	330	49	469	248
Netherlands	....	....	....	....	....	....	19
Norway	....	58	....	....	....	....	....
Europe	....	....	....	....	456	....	....
Other Europe	....	249	....	....	....	....	....
Other countries	58	1,292	123	791	94	325	570
Other South America	275	686	....	....	129	282	....
Peru	....	....	....	1,390	....	....	154
Philippine Islands	429	2,103	....	181	21	486	192
South America	....	....	449	....	....	....	....
Spain	294	....	....	....	....	....	....
United Kingdom	....	....	....	201	....	....	1,625
Uruguay	....	....	....	352	....	....	....
Venezuela	....	....	....	213	....	321	89
Total	4,820	12,410	9,698	13,001	11,357	5,629	9,859

Exports of Machinery, December 1925

(Numbers, unless otherwise stated)

	December 1925	December 1924	1925	1924
Lathes	177	71	1,544	805
Boring and drilling machines	89	117	1,737	2,309
Planers, shapers and slotters	19	15	305	252
Bending and power presses	67	20	428	366
Gear cutters	14	7	417	451
Milling machines	72	51	1,008	453
Thread cutting and screw machines	75	68	919	722
Punching and shearing machines	10	10	205	190
Power hammers	30	24	236	218
External grinding machines	72	84	1,328	2,728
Internal grinding machines	28	16	327	471
Other grinding and sharpening machines pounds	185,614	75,251	1,426,121	1,176,963
Chucks for machine tools	1,460	1,406	23,589	23,686
Reamers, cutters, drills and other metalworking tools, pounds	136,646	161,400	3,303,453	1,951,264
Pneumatic portable tools	1,875	1,026	16,173	13,963
Air compressors		448		5,888
Cranes				
With swinging booms	6		100	47
Other cranes, No.	23	16	212	221
Hoists and derricks, except	622	330	6,052	4,818
Ball and roller bearing, and parts of chains, pounds	167,565	80,872	1,837,356	2,218,875
Sprocket and power transmission, pounds	263,508	268,521	3,192,764	3,816,024
Other chains, pounds	1,137,946	700,769	12,994,454	9,772,495

Superior Steel Net Up

The Superior Steel Corp. reports for the year ended Dec. 31, 1925, net income of $122,139 after interest, amortization, depreciation, reserves and federal taxes, etc. This compares with $48,087 in the previous year. Net income for the fourth quarter of 1925 totaled $95,481 compared with net income of $63,980 in the preceding quarter, and net loss of $2,212 in the June quarter of 1925. The comparative revenue account follows:

	1925	1924
Net sales	$1,920,107	$1,290,919
Operating income	193,944	†147,763
Total income	218,973	†143,328
Charges	123,492	61,228
Net income	$ 95,481	†$204,556

†Deficit.

Brill Corp. Formed

A charter for the Brill Corp. authorizing it to deal in railroad equipment of all kinds has been issued at the state department of Delaware. The capital stock will consist of 710,000 shares, 85,000 of which will be $100 par value, the remainder to be divided into 225,000 Class A shares and 400,000 Class B shares of no par value.

Industrial Men in the Day's News

Charles Piez, Re-elected President of Illinois Manufacturers' Association

KEEN observance and perception have marked his advancement. As a draftsman, detection of an error which would have caused considerable loss brought his first real promotion.

WORKMEN trust and have confidence in him. Since he became president in 1906, *the Link-Belt Co. has never experienced a strike.*

AS VICE president, then general manager and later director general of the Emergency Fleet Corp., he was charged directly with the entire wartime construction program.

UNCERTAINTIES of a man at 21 may be crystallized by a seemingly trivial event into the start of a great career. A timid, underpaid clerk, for example, gained courage for his initial step toward dramatic success when he saw carved on his old desk the initials of John H. Brodribb, who afterward became famous as Sir Henry Irving. A somewhat similar incident gave to Charles Piez the propellant charge for his meteoric rise.

Born Sept. 24, 1866, at Mayence, Germany, he entered the Columbia School of Mines, New York, in the class of 1888. Before he had been in college more than a year, his father met with business reverses and he was obliged to leave school for a year, and when he re-entered he taught in night schools during two years of his course.

Soon after graduating from college, in 1889, he found himself possessed of youthful doubts as to his future, a minor draftsman with the Link-Belt Co., of which he is now president. He was nervous and uneasy and did not like his work particularly, but he needed the money and was anxious to get ahead. The drafting room became practically his place of abode, and after hours he used to wander about the department, wondering if he would always be a draftsman at the same meager pay.

On his wanderings one night he stopped half absentmindedly to glance over some bridge plans being prepared by the head of the department. Becoming interested in them, he discovered an error which would have cost the company thousands of dollars, and called it to the chief's attention. The correction was grudgingly made by the annoyed chief, and when the latter moved up, the keen-eyed young draftsman was greatly astonished to find himself the new department head.

That was the start; 17 years later he had come up through chief engineer, general superintendent and general manager of the Philadelphia works, and in 1906 was elected to head the new Link-Belt Co., formed by consolidation of the Link Belt Machinery Co., Chicago, the Link Belt Engineering Co., Philadelphia, and the Ewarts Mfg. Co., Indianapolis. Today he is chairman of the Link-Belt Co., a director of the Walworth Mfg. Co., Boston, and of several Chicago banks, and he was also president of the Electric Steel Co. in 1920.

His recent re-election to a fourth term as president of the Illinois Manufacturers' association, which office he held in 1911-13 and during 1924, is testimony of his ability as an organizer and manager of industry. That ability in 1917 led E. N. Hurley, then chairman of the United States shipping board, to select Mr. Piez first as vice president and later as general manager of the Emergency Fleet Corp. In this capacity he had control over 600,000 employes of the shipyards, fabricating plants and auxiliary industries. His was the task of carrying out the nation's shipbuilding program, which had for a wartime slogan, "Bridge the Seas with Ships."

With him in this endeavor was Charles M. Schwab, an inseparable associate and friend, and whom Mr. Piez succeeded as director general of the fleet corporation late in 1918. Coming into that task in its earlier days, the character of the organization, its personnel, and its methods were largely his. Of him Mr. Schwab said, on giving over the directing reins: "I regard you, above all other

men, as having contributed more to the work done in the fleet corporation than anyone else."

It is said of Mr. Piez that his success as an arbiter of labor disputes comes from his never failing to keep his word with his subordinates. He has striven often in their behalf in framing much of the labor legislation of Illinois, having been a member of the commission which drew the state factory act of 1909, the state arbitration board, and chairman of the workmen's compensation commission. It is significant that not a strike has occurred in the ranks of the Link-Belt Co. since he became president in 1906.

He is a member of the American Society of Mechanical Engineers, the American Institute of Mining and Metallurgical Engineers and the Western Society of Engineers. He also holds memberships in many Chicago clubs.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

FRED J. GRIFFITHS, formerly president of Central Steel Co., Massillon, O., was elected chairman of the board at the directors' meeting Jan. 28. Mr. Griffiths is a graduate of Case School of Applied Science, Cleveland, and has been associated with Central Steel Co. since shortly after its organization in 1914, serving as vice president and general superintendent before becoming president. He first became connected with the steel industry with United Steel Co., Canton, O., soon after graduation. In 1921 he was elected a director and vice president of Massillon Rolling Mill Co., Massillon.

C. E. Stuart, formerly vice president, was elected president and treasurer. Mr. Stuart also has been with the company practically since its inception.

B. F. Fairless, formerly vice president in charge of operations, is now vice president and general manager.

J. M. Schlendorf, formerly general sales manager, has become vice president in charge of sales.

Charles C. Chase Jr. was named secretary. The executive committee, increased from three to five, includes Messrs. Griffiths, Stuart, Fairless, Schlendorf and William G. Mather, president of Cleveland-Cliffs Iron Co., Cleveland.

* * *

Wiliam H. McGregor has been elected chairman of the board, Howard L. McGregor, president, and C. Earle Smith, vice president and manager of sales, of National Twist Drill & Tool Co., Detroit.

* * *

William H. Woodin, president of American Car & Foundry Co., New York, and chairman of the board of directors of Brill Corp., was elected a director of J. G. Brill Co. Philadelphia, to fill the vacancy caused by the late W. H. Huelings.

* * *

F. A. Geier, president of Cincinnati Milling Machine Co., Cincinnati, recently was presented wth the second milling machine built by the company 42 years ago in 1884, at which time the company name was the Cincinnati Screw & Tap Co.

* * *

W. H. Warner, general superintendent of Trumbull Steel Co., Youngstown, O., has resigned. Vice President C. H. Elliott who recently joined the company as announced in IRON TRADE REVIEW, Dec. 17, is directing operations.

* * *

George B. Doane has been elected chairman of Perry, Buxton, Doane Co., Boston, filliing the vacancy left by W. Vernon Phillips, who resigned to devote his time to F. R. Phillips & Sons Co. and allied interests.

F. Rees Phillips was re-elected vice president and will continue in charge of the territory outside of New England.

* * *

George O. Desautels, president of George O. Desautels Co., Indianapolis, will sail Feb. 6 for Europe, where he will do special work in the interests of Erie Foundry Co., Erie, Pa., and Heppenstall Forge & Knife Co., Pittsburgh. He plans to visit in Switzerland, France, Belgium, Germany and England, a number of plants engaged in drop forging and die work.

* * *

E. J. Hudson has been appointed manager of the blast furnace and lumber departments of Cleveland-Cliffs Iron Co., Cleveland, at Marquette, Mich., succeeding the late Austin Farrell. Prior to his appointment, Mr. Hudson was general superintendent of the blast furnace department. He came with the Cleveland-Cliffs company in 1899, on graduation from Case School of Applied Science, Cleveland, first as chemist at the Gladstone, Mich., chemical plant. As chief chemist he went to Marquette when the plant was erected there, and was made assistant to Mr. Farrell. Mr. Hudson was born in Millersburg, O.

* * *

Elmer T. McCleary has been elected vice president of Youngstown Sheet & Tube Co., Youngstown, O., as part of the organizational changes which are being made by President Campbell. Mr. McCleary graduated from Pennsylvania State college in 1901, specializing in chemistry and metallurgy. Before joining the Youngstown company, he had been with Carnegie Steel Co. as assistant superintendent of blast furnaces and steel department, and in 1912 was made assistant general superintendent of the plant.

Vice President W. C. Reilly has been placed in charge of all works operations.

Vice President C. S. Robinson, formerly in charge of operations, has been given charge of raw materials for all subsidiary companies.

* * *

James Aston, metallurgical engineer in charge of research, A. M. Byers Co., Pittsburgh, has been appointed professor of mining and metallurgy and head of that branch of the engineering department at Carnegie Institute of Technology, Pittsburgh. Prof. Aston was born in England in 1876, and has served as a member of the advisory board of representatives of the metallurgical industries in the Pittsburgh district, co-operating with Carnegie institute and the bureau of mines in metallurgical research. He is a member of the American and British iron and steel institutes, the American Electrochemical society, the American Society of Mechanical Engineers, the American Society for Testing Materials, and the Engineers' Society of Western Pennsylvania.

* * *

George T. Aitken, formerly sales manager of Vonnegut Machinery Co., Inndianapolis, machinery dealer, has

(*Concluded on Page 373*)

Western Industries Expanding

California Manufacturers Adopt Plans for Development of Iron and Steel and Allied Groups—Reinforcing Bar Jobbers Organize—Join National Institute—Marketing Territory Extended

OUTSTANDING among developments of the second annual conference of the iron, steel and allied industries of California, held at Del Monte, Calif., Jan. 22-23 and attended by approximately 150 representatives of Pacific coast and eastern concerns, steps were taken toward:

Formulating definite plans for furthering the timely and orderly development of the iron, steel and allied industries of California.

Development of markets in California for California Pacific coast and American payrolls.

Extension of marketing territory in neighboring western states.

Greater efficiency in production and distribution.

A general improvement in the standards of business practice among all of the interested groups.

Formation of the Reinforcing Steel Institute of California.

Request made by California fabricators to the American Institute of Steel Construction, that the national organizaion establish a Pacific coast office.

The filing of applications by ten California reinforcing bar jobbers, for membership in the Concrete Reinforcing Steel institute, Chicago, a national organization.

The adoption of the United States chamber of commerce code of ethics by the Iron, Steel and Allied Industries of California.

The day preceding the opening of the conference separate executive meetings were held by the group committees representing the mills, structural shops, merchant bar jobbers, reinforcing bar jobbers, general manufacturers and foundries. These meetings were devoted to a preliminary discussion of trade practices within the respective groups, the foreign steel situation, and general problems affecting the relation of the individual groups to the organization as a whole.

C. Louis Meyer, president, Concrete Engineering Co., Omaha, and treasurer of the national Concrete Reinforcing Steel institute, addressed the reinforcing bar jobber group. He outlined the work already accomplished by the national institute and urged the active co-operation of the Pacific coast jobbers.

Ten new members bring the total of the national institute up to 44 firms which handle 90 per cent of the reinforcing bar business in the United States. The reinforcing bar jobbers also took steps to organize and incorporate the Reinforcing Steel Institute of California.

It was decided at the meeting of the structural steel fabricators' committee that the rapid development of the industry in the West warranted the establishment, on the Pacific coast, of a branch office of the American Institute of Steel Construction. Charles F. Abbott, executive director of the institute, replied to the resolution made by the committee that the request of the California fabricators would be considered by the directors of the institute at an early date and that in all probability Lee H. Miller, chief engineer, and himself would visit the Pacific coast in March.

The general session of the conference was opened by Maynard McFie, chairman, and president of the M. T. McFie Supply Co., Los Angeles. Mr. McFie traced the activities of the organization during the past year and urged that all the groups work in conjunction with the traffic committee for a readjustment of freight rates that all Pacific coast producers might expand their trade territories, particularly in adjacent western states.

C. Scheller, Union Hardware & Metal Co., Los Angeles, stated that there was too much of the "lone wolf policy in the merchant bar business" and urged the merchant bar jobbers to co-operate.

C. M. Henderson, H. C. Macauly Foundry Co., Berkeley, reviewed briefly the labor situation in northern California as it pertained especially to the foundry industry. He stated that a molder's strike has been in progress on the open shop question for more than a year, but predicted a decided improvement during the coming year. Charles M. Gunn, Gunn, Carle & Co., San Francisco, outlined the proposed program of the newly organized Reinforcing Steel Institute of California.

J. C. Kortick, Kortick Mfg. Co., San Francisco, advocated the education of the purchasing agent to specify, in ordering, in accordance with the principles of standardization as promulgated by the department of commerce.

Wiggington E. Creed, president, Columbia Steel Corp. and Pacific Gas & Electric Co., San Francisco, was the principal speaker at the closing session Jan. 23. He stated that while new conditions required new methods, every executive knows that his chief problem is the co-ordination of the human element in business, rather than technical problems.

Concrete Bar Jobbers Elect Officers

President

E. L. SOULE,
President, E. L. Soule Co., San Francisco.

Vice President

GEORGE L. EASTMAN,
President, George L. Eastman Co., Los Angeles.

Treasurer

CHARLES M. GUNN,
President, Gunn, Carle & Co., San Francisco.

Directors

RAY G. FALK,
Vice president, Badt-Falk Co., San Francisco.

THOMAS M. DAVIDSON,
American System of Reinforcing, Los Angeles.

J. H. GREGORY,
Steel Service Co., San Francisco.

J. E. HEBER,
Truscon Steel Co., Los Angeles.
Secretary to be appointed.

Issues Call for Foreign Trade Convention

In his call to the convention of the National Foreign Trade council to be held at Charleston, S. C., April 28-30, James A. Farrell, chairman, declares "this is the period which bids fair to see the restoration of international trade to the volume it held before the outbreak of the World war." According to Mr. Farrell, "the world did more work last year than it did the year before and its trade grew correspondingly. Expanded production and importation of raw materials by the great industrial nations of both hemispheres indicates further expansion of production and consumption for this year. Every step of this recovery and advance carries with it its own problems, demanding continued study and thoughtful examination."

This meeting of the National Foreign Trade council is the first to be held on the South Atlantic coast since the conventions were inaugurated in 1914. The program will lay special emphasis on accelerating American exports.

British Gain Is Held

(*Continued from Page* 361)

probably be spread over a fairly long period, and the contracts will therefore be usefully supplementary to current business.

Price increases have been found difficult. Any associated control must be out of the question for some time, but there is a sort of unwritten nonbinding agreement amongst steelmakers to get better prices. The practical effect in the Midlands is that joists and sections lately quoted at £7 ($34.02) delivered are now increased to £7 7s 6d ($35.84). It is very doubtful whether this price has been paid for anything but a very small quantity. The selling figure for moderate tonnages ranges between £7 2s 6d ($34.62) and £7 5s ($35.23) but anything running into hundreds of tons would be promptly accepted at £7 ($34.02).

The galvanized sheet department holds the premier position in exports, shipping 68,134 tons in December against 51,014 in the same month last year, and 55,177 in November. For the 12 months this country sent away 713,084 tons against 649,851 in 1924. New bookings are rather slow, but present orders will cover the first quarter, although the somewhat quieter buying has weakened prices a little, making the basis £16 10s ($80.19). Black sheets are in good demand for a variety of purposes.

The tin plate trade keeps rather quiet, and although the December shipments total 47,137, an increase of 13,000 tons over December of last year, and comparing with 42,409 in December, the year's shipments are about 60,000 tons below 1924. An increasing proportion of the business taken is at 19s 3d ($4.67) per box, a price, it is said, insufficient to carry profits and almost compelling makers to use foreign steel. The trade is hopeful that buyers may regard present prices as representing the minimum, and place their orders.

The Birmingham quarterly meeting coincided with the usual meeting of the Tinned Sheet Manufacturers' association when prices were re-affirmed at £58 per ton for best charcoal ($281.88) £56 ($272.16) for charcoal, and £52 ($252.72) for unassorted grades, all on the 20 gage basis.

Scotch Workers Oppose Steel Houses

Birmingham, Eng, Jan. 5. (*European Staff Service*) — A controversy has developed among Scottish labor men as the result of the obstructionist attitude of building operatives to steel houses, especially of the Weir type. The most notable development is a spirited plea for steel house by E. Rosslyn Mitchell Socialist member of parliament for Paisley, who writes a vigorous article in "Forward", the Glasgow Labor weekly. He points out that the Social party will fail in its avowed purpose of developing the life and standard of the people if it allows itself to be "cajoled or threatened into opposition to a proposition which offers a solution to the two most distressing problems of today, houselessness and unemployment." Mr. Mitchell strongly protests against interference with the engineers building steel houses, as serting that the engineers have a perfect right to make their own terms, and declares that the building unions will incur the contempt of all who want to see people properly housed. He continues, "The conservatism of craft unions is well known. They have had a hard fight, but to threaten to stop brick houses because steel houses are being built is conservatism carried to absurdity. It appears that the nation is to be divided into two camps, the steel housers and the anti-steel housers. Years ago it was steel shippers and anti-steel shippers. Dealing with the assertion that steel houses are insanitary, Mr. Mitchell reminds the union that formerly that was said of steel ships. Yet thousands of people live in steel ships for weeks and months at a time, pass through tropical climates, dock in ports infested with vermin and fever germs and remain sanitary. Thousands of people in Glasgow, skilled artisans, honest, earnest, splendid citizens, are crying out against the insanitary conditions of their stone-built houses. As to the allegation that "people don't want Weir houses", Mr. Mitchell declares that if 5000 were available tomorrow there would be an avalanche of applicants. In two years Glasgow has built only 1500 houses and 10,000 are needed. Thousands of engineers out of work would be glad to build them whereas the plasterers and bricklayers have more work than they can do, and the poor are gasping for houses".

In reply to this George Hicks, the general secretary of the Amalgamated Union of Building Tradeworkers declared that there was no demand for Weir houses, nobody wanted them and the people were anti-steel housers.

Reference to the government's decision to proceed with steel subsidy houses was made at the conference of the Scottish Labor Housing association when Joseph Sullivan, ex-member of parliament for North Lanark, the president, made a strong appeal for support to any method which would prove a useful auxiliary to the building of brick houses. They ought to welcome every auxiliary.

French Market Feels More Confident

PARIS, Jan. 25.—(*European Staff Service*) — The forward buying movement which began with the decline of the franc late in 1925 has slowed down appreciably. The halt in the fall of French exchange and the rise in quotations of French government rents and stocks indicate that confidence is returning and the iron and steel market is regaining a comparative state of stability. Buyers, for the most part, are covered for several months. Furnaces and mills are booked to capacity for several months. Prices of metallurgical products now average 15 to 20 per cent higher than six months ago and it is felt that no further advances will be made.

French coal mines report brisk demand. Recent floods have delayed shipments. Prices are firm with a rising tendency. French manufacturers have advanced coke prices 5 francs ($0.20) per metric ton. Foundry coke is now quoted at 163 francs ($6.12) and furnace coke at 148 francs ($5.55) per metric ton. Reparations coke prices remain unchanged but will undoubtedly be increased in keeping with the new domestic prices. Receipts of reparations coke from Germany totaled 3,206,957 metric tons in 1925, compared with 3,987,131 tons during 1924.

Pig iron production is being pushed to capacity. Orders continue to exceed shipments. As a result of repeated demands from domestic consumers of pig iron for foundry purposes the O. S. P. M. has increased the allotment from 35,000 tons to 50,000 tons per month. The price of this tonnage has been fixed at 397 francs ($14.90) per metric ton f.o.b. Longwy for No. 3 basic bessemer (2.50 to 3 per cent silicon). Orders for this quality for export have been booked at £3 ($14.55) f.o.b. Antwerp. Hematite pig iron is scarce and consumers are experiencing difficulty in obtaining their requirements. The O. S. P. M. has fixed the price of foundry hematite at 495 francs ($18.60) for January shipments, with an increase of 25 francs ($0.94) for February and 40 francs ($1.50) for March.

Makers of semifinished steel products are enjoying an active export market. Buying for England has been unusually brisk. Basic bessemer blooms are quoted at £4 13s 6d ($22.60) f.o.b. Antwerp; billets at £4 8s ($21.30) and sheet bars at £4 13s ($22.50).

The finished steel market is spotty. Export business is less satisfactory than in other departments as the mills are maintaining their prices despite the rise in French exchange. Merchant bars for export are quoted at £5 6s 6d ($25) f.o.b. Antwerp, normal profiles at £4 18s ($23.70) and bar mill angles at £5 5s ($25.50). Tonnage for domestic consumption is offered at varying prices. An order for 400 tons of bars was booked at 630 francs ($23.50). A Saar mill quoted 650 francs ($24.40) on a mixed specification covering squares and rounds. Northern mills quote concrete reinforcing bars at 700 francs ($26.20). Plates over 5 millimeters thick are quoted at from 750 francs ($28.10) to 800 francs ($30) per metric ton. Sheets 1.5 millimeters average 1200 francs ($45). Prices of wire products continue to advance. Rods are now quoted at 700 francs ($26.20). Galvanized pipe has advanced 15 per cent and black pipe 10 per cent, effective on all orders placed with the Comptoir after Dec. 24, 1925.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

LAPHAM-HICKEY CO., 1625 West Pershing road, Chicago, has been organized by men formerly connected with the Fitzsimons Steel & Iron Co., and Edgar T. Ward's Sons Co. and has taken over the warehouse department of the former and will have exclusive representation for this company on mill sales of cold-finished bars except for Wisconsin, the east half of Michigan and St. Louis territory. The same lines of steel will be carried as have been handled by members of the company in their former connections. Edward B. Lapham is president of the company. He formerly was vice president of Edgar T. Ward's Sons Co. and until two years ago was in charge of the Chicago office. Frank E. Hickey, vice president and treasurer, has been with the Fitzsimons Steel & Iron Co. 12 years, resigning as secretary of that company and vice president of the Fitzsimons Steel Products Co., Milwaukee. Robert P. Lapham, secretary, has been with the Edgar T. Ward's Sons Co. for eight years, until two years ago sales manager for the Chicago branch, then being placed in charge of the Cleveland branch of the Ward company.

* * *

MERWIN & BROWN CO., Winsted, Conn., manufacturer of mill and factory supplies, has recently elected the following officers: President, G. W. Merwin; secretary and treasurer R. P. Brown. The directors are the officers and Roberta M. Brown.

* * *

THE WINSTED MFG. CO., Winsted, Conn., manufacturer of corn knives and other cutlery, recently elected the following officers: President and treasurer, J. A. Norton; secretary, G. H. Raidart. The directors are the officers and Annie R. Norton.

* * *

AMERICAN RADIATOR CO. has plans under consideration for materially enlarging its plant at Buffalo, N. Y. by additions to its core room, annealing and shipping departments and installation of a system of continuous molding.

* * *

DRESES MACHINE TOOL CO., Cincinnati, O., has given the Austin Co., Cleveland a contract for a new plant, one story, 90x300 feet, equipped with two 5-ton cranes and one 3-ton crane. Charles E. Gilbert is president, and W. A. Hudson, secretary and treasurer.

* * *

WISCONSIN CYLINDER FOUND- CO., Racine Junction, Wis., is completing an extension of its foundry, which will be ready about Feb. 15 and will be devoted to the production of motorcycle cylinder castings for several manufacturers of these vehicles.

* * *

ILLINOIS METAL PRODUCTS CO., recently organized at Fulton, Ill., has bought the machinery, equipment and stock of the Clinton Kelly Co., Erie, Ill., and is moving it to Fulton, where it will be used in equipping a plant. F. W. Dana is president, A. D. Cowan, vice president, and George H. Reimer, secretary and treasurer.

* * *

AJ. DEER CO., Hornell, N. Y., is negotiating for the plant of the Dery Silk Co., adjoining its present plant. The latter company has not been operating for a year. It is purposed to utilize the plant for the manufacture of scales of the types now produced at the company's plant at Brantford, Ont.

* * *

LOSHBOUGH-BECK PRESS CO., West Beardsley street, Elkhart, Ind., has been organized recently to manufacture open back inclinable punch presses. J. E. Loshbough is president and general manager; L. E. Loshbough, vice president, and H. M. Beek, secretary and treasurer. Distribution will be entirely through dealers.

* * *

PORTAGE SILICA SAND CO., Youngstown, O., operating a plant at Phalanx, O., has elected Joseph G. Butler Jr. president, E. E. Klooz vice president and general manager, J. B. Chambers vice president, Lee R. Farrell secretary and sales manager. The officers and Henry A. Butler, Fred M. Kamengerser and C. E. Hoffmaster form the board of directors.

* * *

THE following officers were elected at the annual meeting of the Winsted Hardware Mfg. Co., Winsted, Conn.: President, J. S. Frazee of Brooklyn, N. Y.; vice president, T. H. Bronson; treasurer, E. A. Frazee; secretary, A. A. Griffin. The directors are J. S. Frazee, T. H. Bronson, E. A. Frazee, L. W. Tiffany, and George F. Drake.

* * *

THE AMERICAN BROWN BOVERI ELECTRIC CORP., which recently organized to take over the plant of the New York Shipbuilding Corp. at Camden, N. J., has sold a 13,500-ton steel tanker to the Gulf Refining Co. The tanker which has been under construction at Camden is to be launched about Mar. 15 and is the largest American built diesel ship.

* * *

PORT OF BIRMINGHAM RAILWAY CO. has been incorporated at Birmingham, Ala., with $2000 capital to buy from the Southern railway the Ensley Southern railroad, 18 miles long, from the city limits of Birmingham to the Warrior river, connecting there with government barge service to Mobile and New Orleans. This assures an industrial outlet to tidewater from the Birmingham district.

* * *

THE NORTON CO., manufacturer of abrasives and abrasive machinery, Worcester, Mass., re-elected the following officers at its recent annual meeting: Chairman of the board, Prof. George I. Alden; president, Charles L. Allen; treasurer, Aldus C. Higgins; clerk, George N. Jeppson; directors, the above-mentioned officers and R. Sanford Riley, William LaCoste Neilson, Henry Duckworth, John C. Spence and Clarence W. Daniels.

* * *

MARSHALL FOUNDRY CO., Marshall, Mich., has been incorporated with $125,000 capital to operate the foundry formerly conducted by the Flint Foundry Co., with capacity of 60 tons per day. It is producing 30 tons per day at present, in manifolds and other gray iron automotive parts. The foundry is equipped to handle core work on a production basis. Harry A. McDonough, Detroit, is president and chairman of the board; C. H. Billings, cashier First National bank, Marshall, vice president; C. J. McNamara, Milwaukee, secretary, treasurer and general manager. Sales will be managed by the W. R. McDonough Co., General Motors building, Detroit, and 620 National building, Cleveland.

Favorable Outlook

For Year Ahead Seen By President Grace of Bethlehem

With operations on a higher plane and company finances in good shape the Bethlehem Steel Corp. entered the new year under favorable conditions, according to a statement by President E. G. Grace following a meeting of the directors in New York Thursday. Operations averaged 77 per cent of capacity in the fourth quarter compared with 59.7 per cent in the third.

Earnings of the company for the fourth quarter amounted to $4,272,830 after all charges, against $3,015,862 in the corresponding quarter one year ago. For the full year earnings were $13,858,196 compared with $8,916,181 in 1924. The income was equal to $5.30 a share on the common stock in 1925 against $2.56 a share one year before.

Unfilled orders on hand on Dec. 31 were $70,566,923 against $77,049,619 one year ago. Gross sales in 1925 amounted to $273,025,320 compared with $243,904,265 for 1924. New business booked during the year amounted to $266,542,624 against $267,688,973 in the preceding year.

President Grace pointed out the balance sheet as of Dec. 31 will show a ratio of current assets to current liabilities of five to one. Cash and liquid assets as of Dec. 31 totaled $39,390,524 against $49,605,350 on Dec. 31, 1924. The comparative income account for the fourth quarter follows:

	Quarter Ended		
	Dec.31,'25	Sept.30,'25	Dec.31,'24
Net earnings	$10,543,136	$8,337,762	$9,550,715
Interest, etc.	3,224,083	3,262,116	3,498,539
Balance	$ 7,319,053	$5,075,646	$6,052,176
Depreciation	3,046,223	2,984,987	3,036,314
Net income	$ 4,272,830	$2,090,659	$3,015,867
Preferred div.	1,075,870	1,075,774	1,075,323
Surplus	$3,196,960	$1,014,885	$1,940,530

The income account for the full year, based on figures in the quarterly statement, follows:

	1925	1924	1923
Gross sales,	$273,025,320	$243,904,266	$275,213,000
Net earnings,	38,988,742	33,996,489	37,373,228
Interest, etc.,	13,125,562	13,233,417	12,322,997
Balance,	$ 25,863,180	$ 20,763,072	$ 25,050,230
Depreciation, etc.,	12,004,984	11,846,891	10,676,078
Net income,	$ 13,858,196	$ 8,916,181	$ 14,374,152
Dividends:			
Preferred,	4,303,073	4,300,583	4,818,253
Common,	.....	2,247,571	7,767,023
Surplus,	$ 9,555,123	$ 2,368,027	$ 2,228,824

The cash expenditures for additions and improvements to properties in 1925 amounted to $34,466,613 all of which in addition to substantial reductions in funded debt was provided for without any new financing, according to President Grace. The estimated cost to complete construction authorized and in progress as of Dec. 31, 1925 was $13,200,000.

"The year 1925 was in many ways the most remarkable year in the history of the steel industry in this country," said the president. "Approximately 44,187,000 tons of steel ingots were produced, establishing a new record. Notwithstanding the unprecedented demand for steel products, however, prices tended downward during the first two quarters and remained low throughout the year.

"The average billing prices of rolled steel and other finished products shipped by Bethlehem during the year were $3.48 per ton less than the average for 1924, and $7.48 per ton less than the average for the first quarter of 1924.

"The general outlook in the steel industry for at least the first half of 1926 is favorable. There is a large demand for steel products of all kinds, sufficient to support the present high rate of operations; there has been no apparent accumulation of stocks by consumers; there has been a general improvement in prices during the last three months and if the current demand continues there is every reason to expect still further improvement."

J & L Starts Dividend

An initial dividend of $1 on the common stock has been declared by the Jones & Laughlin Steel Corp. It is not stated whether or not this is a quarterly payment.

The corporation reports for the year ended Dec. 31, 1925, net income of $9,854,494 after depreciation, depletion, taxes, etc., equivalent after preferred dividends to $10.36 a share on the 573,320 shares of common stock outstanding, compared with $8,194,384, or $7.46 a share on the common stock in the preceding year. The income account for the year ended Dec. 31, 1925, compares as follows:

	1925	1924	1923
Total income	$9,954,494	$8,626,229	$10,913,878
Adjustments	.....	331,845	360,350
Pension fund	100,000	100,000	250,000
Net income	9,854,494	8,194,384	10,303,528

*After depreciation, depletion, taxes and interest.

Virginia's Net Up

The Virginia Iron, Coal & Coke Co. reports gross earnings of $1,009,713 for the quarter ended Dec. 31, and net income of $9752 after all charges. The gross $865,709 and the net $61,997 in the September quarter. Based upon the quarterly statements, gross earnings for 1925 aggregated $3,386,308 against $3,602,442 in 1924. Net profit, subject to inventory adjustment, amounted to $218,791 last year, against a loss of $53,503 in 1924.

Pressed Steel To Merge

Action by the stockholders of the Pressed Steel Car Co. on the proposed absorption of the Western Steel Car & Foundry Co., a subsidiary, will be taken at a special meeting in Jersey City, Feb. 17.

The merger agreement provides that the corporate existence and name of the Pressed Steel Car Co. shall continue with a total authorized capital of $16,200,000 par value preferred stock and $46,300,000 par value common stock.

On completion of the merger there will be outstanding $15,000,000 of 7 per cent cumulative preferred stock and $12,500,000 common stock. Holders of $100 par value preferred will be permitted to exchange their shares for a like amount of new preferred or $100 of new common and $20 of new preferred. Holders of common will receive for each $100 par value the same amount of new common stock and $20 of new preferred.

Inland Steel Net Lower

The Inland Steel Co., Chicago, has reported net income after charges of $4,869,735 for 1925. In 1924 net income was $5,474,601. For the last quarter of 1925 net was $1,421,116 against $2,335,946 in the corresponding quarter of 1924. The comparative income account follows:

	1925	1924	1923
Operating income	$7,813,534	$7,748,590	$7,434,199
Other income	166,781	295,973	274,043
Gross income	$7,980,316	$8,044,563	$7,708,242
Depreciation, etc	2,055,638	1,507,295	1,296,104
Interest, etc.	129,943	58,667	162,180
Federal taxes	669,000	716,000	650,000
Employes' savings	256,000	288,000	265,000
Net income	$4,869,735	$5,474,601	$5,274,958

Sheet & Tube Improves

Net earnings of the Youngstown Sheet & Tube Co., after charges, were about $12,000,000 in 1925 against $7,598,075 in 1924. These figures were made public at a meeting of directors of the company. According to a statement by President James A. Campbell the company's expansion program will be completed by July 1, 1926. Its cost is $20,000,000 and it will be paid for entirely out of earnings, partly from surplus and partly from funds charged off to depreciation.

The net income of Gulf States Steel Co. for the December quarter was $258,252, after charges, against $260,039 in the 1924 quarter. The net income for the year was $1,036,777, against $979,315 in 1924.

Men of Industry

(*Concluded from Page* 368)

been made manager of machine tool motor sales in the electrical division of Fairbanks, Morse & Co., Indianapolis, manufacturer of motors, engines and pumps.

* * *

R. Charles Brower has been made assistant to H. J. Porter, vice president in charge of sales, for the Timken Roller Bearing Co., Canton, O. Mr. Brower joined the Timken company in 1916 as district manager of the Bearings Service Co. with offices at Detroit. When it dissolved in 1922 he joined the newly formed Timken Roller Bearing Service & Sales Co. at Canton, as assistant general manager.

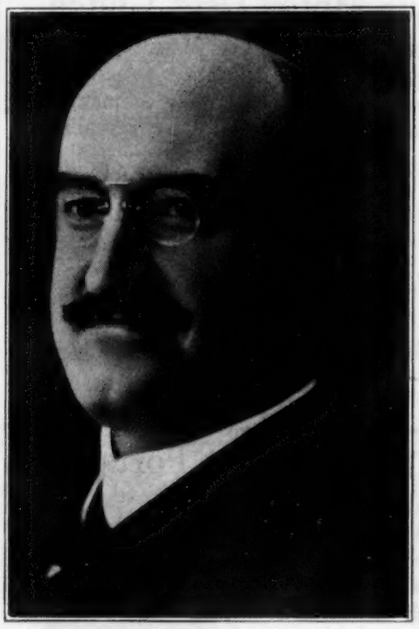
* * *

F. H. Moyer has been appointed general superintendent of operations of United Alloy Steel Corp., Canton, O. Mr. Moyer formerly was associated with Carnegie Steel Co., after graduation from Cornell university in 1899, and later with the Indiana Steel Co. and Cambria Steel Co. in engineering capacities. He became assistant to the works manager of Pittsburgh Crucible Steel Co., Midland, Pa., in December, 1920, and in January, 1923, joined the United Alloy corporation as chief engineer. Jan. 1, 1925, he was appointed assistant to the vice president in charge of operations.

R. H. Dougherty has been made assistant general manager. Mr. Dougherty entered the steel industry in 1899 with the American Steel Hoop Co. When this company was absorbed by the United States Steel Corp., he became associated with Carnegie Steel Co. and remained there until joining the United Alloy corporation in 1919 as production manager. In May, 1925, he was placed in charge of the sheet division, including the Berger plant at Canton.

Obituaries

SAMUEL D. LATTY, president and founder of the Kirk-Latty Mfg. Co., Cleveland, bolt, nut and rivet manufacturer, died recently at his home in that city. He was born Sept. 12, 1864, at Taunton, Mass., coming to Cleveland in 1886 where he was first associated with the



SAMUEL D. LATTY

William Bingham Co., Cleveland, hardware, mill and factory supplies, for seven years, in sales work. Later he became sales manager for National Screw & Mfg. Co., Cleveland.

* * *

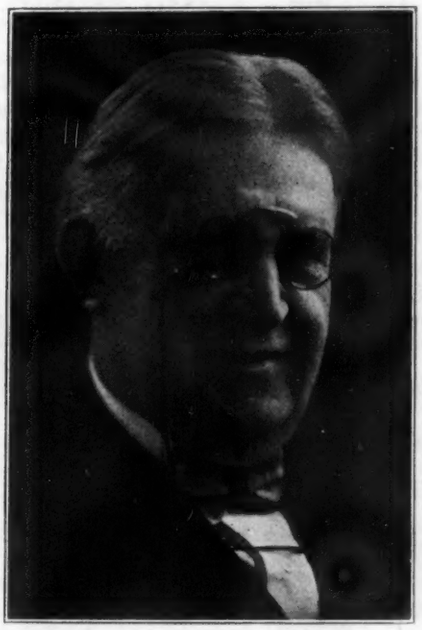
Henry C. Barnhart, secretary and treasurer, director of purchases and director of the Marion Steam Shovel Co., Marion, O., died last week from pneumonia, age 50 years. Mr. Barnhart had been ill for several weeks. He had been identified with the Marion company all his business life and was the son of the inventor of the shovel manufactured by the Marion Steam Shovel Co.

* * *

Louis Fisher Walter, 67, formerly a partner of Walter-Wallingford Co., Cincinnati, merchants in pig iron, coke etc., died at his home there Jan. 27. After over a year's illness, he sold his interest in the company on Jan. 1 to his partner, B. A. Wallingford. Mr. Walter had been identified with the company over 30 years. He started in business with Thomas A. Mack, operating as Thomas A. Mack & Co., later forming the partnership with Mr. Wallingford when the former retired. The present firm name then was adopted. Mr. Walter's brother, C. Wood Walter, is vice president and secretary of Cincinnati Milling Machine Co., Cincinnati.

* * *

Thomas Andrew Gillespie, chairman and formerly president of T. A. Gillespie Co., New York, steel pipe contractor and engineer, died unexpectedly at his home in East Orange, N. J., Jan. 27. He was born in Pittsburgh, July 1, 1852, and in 1884 joined the late George Westinghouse in developing the natural gas industry in western Pennsylvania. Prior to this date he was in business for himself manufacturing bolts. With his brother, R. G. Gillespie, he began in 1890 the T. A. & R. G. Gillespie interest, incorporated in 1897 as T. A. Gillespie Co. One of the main projects of his company was construction of the 150-mile viaduct and Hudson river tunnel carrying water into New York from the Catskill mountains. At the



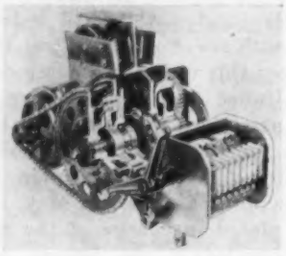
LOUIS FISHER WALTER

time of his death Mr. Gillespie was also a director of the East Jersey Pipe Corp., Paterson, N. J., chairman of Dey Street Realty Co., trustee of Equitable Life Assurance society, and a director of the New York Trust Co. He was also a member of numerous clubs.

Hoist Requires Little Headroom

No. 30

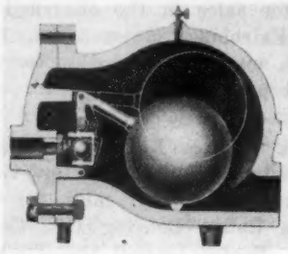
Yale & Towne Mfg. Co., Stamford, Conn., has recently placed on the market a new ball bearing electric chain hoist with close headroom, long lift, high speed and automatic top and bottom limit stops features. Centralized suspension gives a constantly balanced load. Bearings are of chrome vanadium steel The one-piece load sheave gives low current consumption, and is bronze-bushed.



Steam Trap Is of Improved Design

No. 33

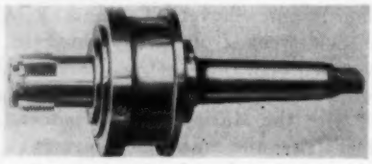
Williams Gauge Co., Pittsburgh, has developed a steam trap with only two operating positions, namely, completely shut and wide open. Float is of welded chrome nickel tested at 600-1200 pounds per square inch. Ball and seat are of monel metal and are easily removable for renewal. The trap does not open immediately when the float rises. It shuts off completely after discharge.



Introduces Rotary Collapsing Tap

No. 31

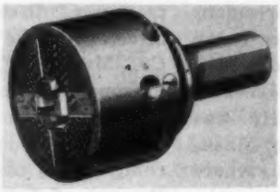
Geometric Tool Co., New Haven, Conn., recently put on the market a rotary type collapsing tap with flange trip. A flange is fitted over the closing sleeve for collapsing and resetting the tap. Short length gives strength to the front end under torsional stress of tapping, while the front end itself has a large diameter. Milled grooves in front of chasers make them free-tapping and give maximum chip clearance.



Die Head of Self-Opening Type

No. 34

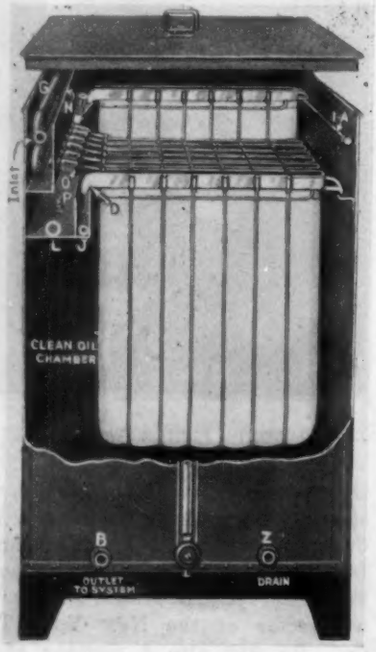
National Acme Co., Cleveland, has recently developed a new type self-opening die head for use on equipment with a live spindle requiring a revolving die. It is tool hardened and ground throughout. Opening and closing action is positively controlled. Two parallel screws are adjustable for proper cutting size, and without removing the tool. Cutting capacities of the tool are from ⅛ to 2½-inch diameters represented in seven sizes.



Filters Dirty Lubricating Oils

No. 32

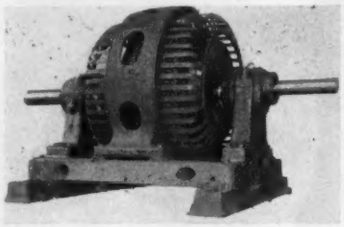
Wm. W. Nugent & Co., Inc., Chicago, has recently developed an oil filter for internal combustion engines, pumps, compressors, reduction gear drives and bearings. All dirty oil passes through filtering bags from the inside out and is caught on the inside, eliminating a shut down in order to clean the filter. When the bag is lifted out, the pivotal drip automatically swings into a vertical position, shutting off the oil flow. A bell and light automatically signal when the filtering bag requires cleaning, and the bag frame is always from 4 to 10 inches above the oil level. The filter has a by-pass gage glass, thermometer, a heating coil, and an optional cooling coil.



Synchronous Motor Uses Clutch

No. 35

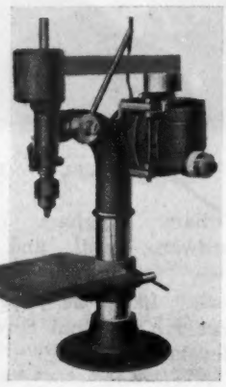
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has developed a new type synchronous motor combining a magnetic clutch in a single compact unit. Available in ratings from 60 to 600 horsepower, it has extra high starting torque and a low starting current. A spring plate provides for clutch clearance.



Bench Drill Equipment Portable

No. 36

Winterhoff Tool & Machine Co., Elkhart, Ind., has placed on the market a portable 10½-inch bench drill equipped with a ¼-horsepower motor switch built-in motor switch. Horizontal drive gives full power to the endless belt, which is tightened by thumb screw. Full spindle travel is allowed through the stop collar. Spindle speeds are 1100 and 3500 revolutions.



Must Judge Machines with Fairness

(*Concluded from Page* 337)

Powell Planer Co. It is described as No. 29 in the accompany Digest. The machine has a maximum stroke of 42 inches and its table can be positioned so that any section can be under the cutting tool, thus allowing work to be placed most conveniently. Six changes of speed are available, namely, 6, 8, 12, 17, 24 and 34 strokes per minute, these changes being made through a gear box employing sliding gears and being located on the front of the machine. Length of stroke is changed by a handwheel located on the operating side of the planer, the stroke being indicated on a dial.

An improved design of vertical tire mill for boring and turning steel locomotive tires recently has been developed by the Betts works of the Consolidated Machine Tool Corp. No. 27 shows the 96-inch machine which has a swing of 100 inches, but the unit also is built in 66, 72, 84, and 108-inch sizes. It is to be noted that the mill has a narrow guide rail crossrail, power rapid traverse to the saddles and the tool spindle are driven by independent motor. It has continuous feed with eight changes through sliding gears. The table is equipped with a 4-jaw universal chuck for centering tires. Application of a wrench to any one of the jaws causes the others to move.

With all driving and feed gears, as well as saddles and tool spindles, made of steel, the machine is fitted for extremely heavy duty. Tool spindles are of heavy rectangular section and are carried in swivels having square guides. The crossrail has a wide face and no vertical adjustment. Feed and power rapid traverse may be engaged, disengaged and the direction reversed by means of two levers located conveniently above each feed box.

Bloom Shear Is Powerful

The bloom shear described in No. 28 is of unusual interest as it is the largest electrically driven shear which has been built by the United Engineering & Foundry Co. A 250-horsepower motor is required to operate it. The cutting pressure between the knives is 1,800,000 pounds with a capacity to cut 6 x 40-inch slabs, and through the use of special knives and knife blocks, will shear blanks for 15, 18 and 24-inch I-beams. A good idea of the massive construction may be gained from the following measurements: Crank pin is 26 inches in diameter and 30 inches long; main bearings are 22 inches diameter and 25 inches long; the stroke is 18 inches; and the housing weighs 65,000 pounds.

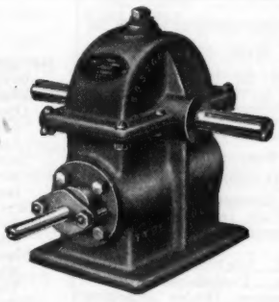
Combining two pieces of apparatus that have been well established in the electrical power field, Westinghouse Electric & Mfg. Co. has introduced a new synchronous motor equipped with a magnetic clutch. This unit, which is shown in No. 35 of the Digest, meets the need for a motor having high starting torque, a low starting current and the recognized high efficiency and unity power factor characteristics of the synchronous motor. It is available in standard ratings from 60 to 600 horsepower.

The unit combines in one machine the high starting torque of the wound-rotor induction motor with the operation features peculiar to the synchronous motor. It is started in the same manner and with the same equipment as used with a standard synchronous motor started under light load conditions. By means of the clutch, the load is applied only after the motor is brought up to synchronous speed and is fully excited.

Speed Reducers Are Standardized

No. 37

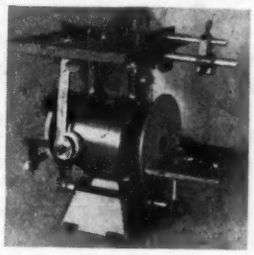
Boston Gear Works, Norfolk Downs, Mass., has developed a line of standardized speed reducers in both helical and worm gear types and a wide variety of sizes and ratios for industrial application. The higher reductions are obtained through either a roller chain connected with the driven shaft of the unit, or a silent chain connecting with the shaft.



Designs Portable Saw and Sander

No. 39

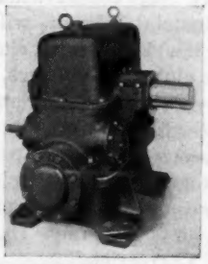
Winterhoff Tool & Machine Co., Elkhart, Ind., is marketing a portable universal saw and sander equipped with a 6-inch general purpose saw guarded by an automatic shutter guard. The tilting table is 10 x 12 inches, furnished with a milled groove for protractor guide. An 8-inch metal disk sander and a 6-inch tool grinding wheel is provided. Speed of the saw arbor is 3500 revolutions per minute, through a ¼-horsepower motor.



Develops Two-Stage Gear Reducer

No. 38

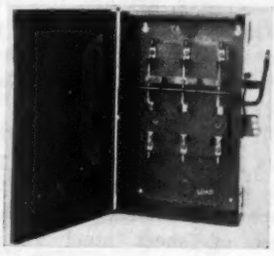
De Laval Steam Turbine Co., Trenton, N. J., recently has brought out a 2-stage worm reduction gear for ratios up to 8000:1. The one casing carries all bearings for both high and low speed worm and wheel shafts, insuring accurate alignment and meshing. There are only three working members, excluding ball bearings of the worm shafts. Low speed shaft bearings are lubricated by a positive oil pump. End thrust and bending strains are avoided through flexible couplings.



Electric Switch Is Quick Breaking

No. 40

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has introduced a new quick-break industrial switch, safety enclosed. The switch is externally operated, the stops which limit travel of arm and blades being outside the box. Knockouts are clean cut and easily removed. Capacities available are from 30 to 200 amperes, the switch being rated at 250 volts direct and 250-500 volts alternating current.



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32. Oil filter	2/4
17. Pyrometer switch	1/14
39. Saw and sander	2/4
26. Spacing table	2/4
33. Steam trap	2/4
35. Synchronous motor	2/4

Societies News

IN CONNECTION with the twenty-eighth annual meeting of the American Ceramic society, to be held at the Biltmore hotel, Atlanta, Ga., Feb. 8-11, there will be an exhibit ceramic products, materials and equipment. Following the technical sessions, delegates will board a special train for a 3-day visit to a number of refractories and pottery plants at Macon, McIntyre, Wriley and Gordon, Ga.

The technical program arranged will cover the divisions of refractories, enamels, heavy clay products, glass, whitewares, art and terra cotta. The refractories division will meet Tuesday a.m., Feb. 9, and in the afternoon W. H. Fulweiler, United Gas Improvement Co., Philadelphia a symposium will be held on refractories for the gas industries. Several papers will be presented Tuesday afternoon before the enamels division on the subject of sheet steel enamels, while Wednesday morning will be given over to a symposium on the preparation of sheet iron and cast iron surfaces for enameling. Included in the program of the convention will be the following papers:

Tuesday, Feb. 9

ENAMEL DIVISION

Morning session, M. E. Manson, chairman.

"Progress Report on Cast Iron for Enameling," by H. G. Wolfram, bureau of standards, Washington.

"Pyrometry," by G. V. Nightingale, Republic Flow Meters Co., Philadelphia.

"Behavior of Carborundum Under Working Conditions," by F. G. Jaeger, Superior Enameled Products Co., St. Louis.

"Gas-Fired Enameling Furnaces—Comparative Results of Intermittent, Semimuffle and Full-Muffle Types," by H. H. Clark, People's Gas Light & Coke Co., Chicago.

Afternoon session.

"Progress Report on Ground Coats for Sheet Steel," by H. G. Wolfram and W. N. Harrison, bureau of standards, Washington.

"How to Use Supplier's Service Department to the Fullest Advantage," by R. D. Landrum, Titanium Alloy Mfg. Co., Cleveland.

"Effect of Composition on the Properties of Sheet Steel Enamels," by H. G. Wolfram, bureau of standards, Washington.

REFRACTORIES DIVISION

Morning session, C. E. Bales, chairman.

"Effect of Furnace Atmosphere on the Deformation under Load of Fire Brick of Varying Iron Content," by L. F. Sheerar, bureau of mines, Columbus, O.

"Variable Load Tests on 50 Brands of Refractories," by M. C. Booze, Refractories institute, Pittsburgh.

"Specifications for Buying Refractories," by J. Spotts McDowell, Harbison Walker Refractories Co., Pittsburgh.

Wednesday, Feb. 10

ENAMEL DIVISION

Morning session, symposium on preparation of sheet iron and cast iron surfaces for enameling.

"Observations on Sandblasting," by E. A. Elgenbrot, Buck Stove & Range Co., St. Louis.

"Sandblasting Data and Costs," by H. L. Brooks, Ferro Enamel Supply Co., Cleveland.

"Preparation of Sheet Iron for Enameling," by E. P. Plott, United Alloy Steel Corp., Canton, O.

"Grease Removal and Chemical Cleaning of Sheet Iron," by C. S. Houpt, Wrought Iron Range Co., St. Louis.

"Cleaning and Pickling of Sheet Iron for Enameling Purposes," by Homer F. Staley, Metal & Thermit Corp., New York.

"Some Factors Influencing the Rate of Pickling," by J. E. Hansen and G. S. Lindsey, Mellon institute, Pittsburgh.

"Practical Chemical Control of Pickle Room Solutions," by B. T. Sweely, Baltimore Enamel & Novelty Co., Baltimore.

* * *

Will Hold Power Conference

A conference on conservation of power in industrial plants will be sponsored by the Engineers' club of Philadelphia at club headquarters, 1317 Spruce street, Philadelphia, Feb. 16. Engineers and officials of industrial plants have been invited to participate in the program, which begins at 9:30 a.m. One of the chief papers scheduled is on "Economy Due to Power Factor Correction."

January Warehouse Sales Above 1925

Buying Gains Slowly As Prices Stay Steady —New York Dull

NEW YORK is the only dull spot in the iron and steel warehouse market. Most distributing centers report January tonnage up to 25 per cent above that for the corresponding month of 1925. Spring buying is expected to maintain the steadily increasing tonnage being booked. Prices show little change.

Jobbing demand in the New York metropolitan district continues fair. Prices are steady. Structurals have been showing an easier tendency, with shading on certain sizes in some quarters. January, according to some jobbers, showed a loss of about 25 per cent as compared with December. This is unusual and may not be attributed to the fact that January was slower than it usually is but rather to the reason that December 1925 was particularly active, good trading being done even through the holiday period.

Warehouse business at Cincinnati has shown a steady improvement since Jan. 1. Bookings by a majority of the jobbers last month will exceed January 1925 by 25 per cent. Plates and cold-rolled stock are best in demand. Structurals are moving slowly owing to inclement weather conditions.

Buffalo warehouse business in January was of better than average proportions for the month, a break in demand midway in the month being overcome by good sales at the beginning and end. Sheets were especially active. Prices are unchanged and firm.

St. Louis warehousemen report January business well up to expectations, and above the average for that month in recent years. Prices are steady.

Slightly heavier shipments and deliveries by Pittsburgh warehouses is the record for January, as compared with the December tonnage. Demand is well diversified. Prices are firm and unchanged.

Cleveland jobbers report January business better than that month of 1925. Prices remain firm except for occasional shading for attractive tonnage.

Detroit warehouse trade continues fair. January business was slowed by automobile manufacturers proceeding cautiously. Warehouse operators are looking for a large increase in business this month. Prices are firm and unchanged.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.05c
New York	3.24c
Philadelphia	2.85c to 3.20c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	2.85c to 3.20c
St. Louis	3.25c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c
Cincinnati	3.30c
Cleveland	2.40c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	3.00c to 3.25c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c
Youngstown	2.50c to 2.60c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.05c
New York	3.34c
Philadelphia	2.70c to 3.10c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.75c to 3.05c
Philadelphia, 3/16-inch	2.90c to 3.20c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	3.70c
New York	3.89c
Portland	4.25c
Philadelphia	3.50c
San Francisco	3.75c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	5.25c
Buffalo	4.60c
Chicago	4.10c
Cincinnati	4.55c
Cleveland	4.10c
Detroit	4.25c
Los Angeles	4.75c
New York	4.30c to 4.35c
Philadelphia	4.60c to 4.65c
Portland	5.50c
San Francisco	4.75c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.35c

NO. 28 GALVANIZED SHEETS

Boston	6.25c
Buffalo	5.90c
Chicago	5.25c
Cincinnati	5.65c
Cleveland	5.25c
Detroit	5.50c
Los Angeles (corr. 28 ga.)	6.00c
New York	5.35c to 5.50c
Philadelphia	5.85c
Portland	6.25c
San Francisco	6.00c
Seattle	6.50c
St. Louis	5.70c
St. Paul	5.60c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	3.90c
New York	3.99c
Philadelphia	3.75c to 3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.85c
Detroit	4.30c
New York	4.49c
Philadelphia	4.00c to 4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	4.05c	4.55c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.90c	4.40c
Detroit	3.85c	4.25c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	4.25c*	.....
Seattle	5.00c*	.....
St. Paul	3.85c	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.30c
Buffalo	6.35c
Chicago	6.25c
Cincinnati	7.15c
Cleveland, over 500 pound lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.25c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL

New York, duty paid

Swedish hollow drill steel	15.00c
Swedish iron bars round	6.75c
Flats and squares	7.00c

WELDED PIPE

Discounts from warehouse. New York City

Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—23	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—23
2½ to 6 inch lap	—43	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 9
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

FRESNO, CALIF.—Southern Pacific Co., 65 Market street, San Francisco, will build a machine shop and locomotive roundhouse here.

LOS ANGELES—Advance Auto Body Works, 515 Mission road, is having plans made for two additions, two stories, 125 x 156 feet and 30 x 40 feet. H. E. Bean Central building, is architect.

LOS ANGELES—Plomb Tool Co., Santa Fe avenue, is building a 2-story addition 80x180 feet.

LOS ANGELES—Bausch-Ross Tool Co., 5520 South Boyle avenue, has let a general contract to the Moran Co. for an addition to its plant.

OAKLAND, CALIF.—Electrical Products Corp., Thirtieth and Myrtle streets, is building an addition to its plant.

SACRAMENTO, CALIF.—American Can Co., Third avenue and Twenty-second street, San Francisco, is building a 1-story plant here to supply cans for fruit packing industry.

NEW BRITAIN, CONN.—Russell & Erwin Division of the American Hardware Corp. will build a 2-story unit with 43,000 square feet floor space.

NEW HAVEN, CONN.—Marlin Fire Arms Co. has been incorporated with $450,000 capital to manufacture firearms by Frank Kinner, H. G. Wynne and Thomas W. Cahille.

SOUTH NORWALK, CONN.—Nash Engineering Co., manufacturer of pumps and compressors, will build an addition 50x170 feet, one story.

TORRINGTON, CONN.—Wellmade Electric Mfg. Co. has been incorporated to manufacture electric apliances and will add largely to its production facilities this year.

TORRINGTON, CONN.—Progressive Mfg. Co., manufacturer of machine bolts, studs and similar products, will build a 1-story addition. W. E. Hunt is architect.

DAVENPORT, FLA.—Polk Steel & Iron Works, recently organized, will build plant and warehouse for manufacture of ornamental iron and steel products, fire escapes and the like.

JACKSONVILLE, FLA.—Peck Safety Windshield Corp. has been incorporated with $100,000 capital by I. W. Peck and A. F. Deachman.

WEST PALM BEACH, FLA.—General contract has been awarded to Foley Bros. Inc., 209 Gilfillan Block, St. Paul, Minn. for 100-mile railroad extension from West Palm Beach through Miami to Florida City and 100-mile railway in western Florida near Tampa and Ft. Myers for the Seaboard Air Line at a cost of $3,500,000.

CHICAGO—Battery Products Co., H. T. Walker manager, 5424 South State street, will build a 1-story addition.

CHICAGO—American Stamping Works, 219 South Peoria street, manufacturer of steel ceilings, will build a 2-story plant 25 x 78 feet.

CHICAGO—Wittenmeier Machinery Co., 815 North Spaulding avenue, will build a 1-story shop 37 x 102 feet. General contract to R. Hockmuth & Co., 1930 Orchard street.

CHICAGO—Great Lakes Electric Mfg. Co., G. A. Johnstone president, 11 South Des Plaines street, will build a 1-story plant 75 x 125 feet at 653 North Kedzie avenue.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

CHICAGO—Mid-City Body Co., 401 North Morgan street, E. Grajewski, secretary and treasurer, will build a 1-story addition 85 x 125 feet.

CHICAGO—Hendrickson Motor Truck Co., M. Hendrickson president, 3538 South Wabash avenue, is building a machine shop addition 50 x 170 feet. General contract to E. C. Ecker & Associates, 110 South Dearborn street.

CHICAGO—Floor space of the Titchener-Diehl division of the Kalman Steel Co., 1844 West Austin avenue, Chicago, is being enlarged 40 per cent by a 2-story addition, 47 x 60 feet, which will be completed Feb. 1. No equipment will be needed. The division manufactures wire shapes.

CHICAGO—Austin Tool & Specialty Co., 429 North Cicero avenue, has been incorporated with $50,000 capital to manufacture tools, dies and stampings by Otto Sindelar, John G. Kulick, William J. Poss, George Sindelar and Charles Sterba. Jones & Kerner, 139 North Chark street, are attorneys.

CHICAGO—Illuminating Electric Co., 1133 West Roosevelt road, has been incorporated with $35,000 capital to manufacture electrical supplies and apparatus by B. H. Lieberman, H. M. Schwartz, M. B. Greenwald and Nathan H. Weiss. Short & Guenther, 10 South La Salle street, is correspondent.

CHICAGO—North American Car Corp., 327 South LaSalle street, has been incorporated with 125,000 shares no par value to build and repair railroad equipment appliances and supplies by Erwin R. Brigham, G. A. Johnson and N. M. Stott. Mayer, Meyer, Austrian & Platt, 308 South LaSalle street, are attorneys.

CHICAGO—Bulldog Furnace Co., 2845 West Nineteenth street, has been incorporated with $100,000 capital to manufacture furnaces and heating apparatus by John M. Cameron, Timothy F. Mullen and John R. Heath. Custer & Cameron, 209 South LaSalle street, are correspondents.

CHICAGO—Lapham Hickey Co., 1625 West Pershine road, has been incorporated with $50,000 capital to manufacture iron, steel and other metal products by Robert F. Fitzsimmons, Frank E. Hickey, Edward B. Lapham, and Robert P. Lapham. E. Allen Frost, 29 South LaSalle street, is correspondent.

MELROSE PARK, ILL.—Electrical Engineers Equipment Co. will build a plant and office building. General contract to Stone & Wbester, 38 South Dearborn street, Chicago.

MOLINE, ILL.—Harrington Seaberg Fire Alarm Telegraph Co., Severin Seaberg president, 1708 Third avenue, will build a 3-story plant 60 x 120 feet. General contract to Axel Carlson Co., 7506 Fifteenth street.

OTTAWA, ILL.—Woods Bros. Construction Co., Lincoln, Nebr., has been awarded contract to build lock dam on Illinois river near Ottawa for Illinois waterways commission at cost of $1,500,000.

WAUKEGAN, ILL.—Waukegan Foundry Co., A. K. Barr manager, Terminal building, Waukegan, will build a 1 and 2-story foundry 87x254 feet.

WAUKEGAN, ILL.—The Morrow Co., 606 North Sheridan road, has been incorporated with $40,000 capital to manufacture vacuum cleaners, and washing machines by I. L. Smith, George B. McKibbin and William A. Bradford. Good, Childs, Bobb & Wescott, 231 South La Salle street, Chicago, are attorneys.

WOODSTOCK, ILL.—Woodstock Metal Products Co. has been incorporated to manufacture tools, dies and fixtures by J. M. Marsilius president, Mac Marsilius vice president, John Hoy treasurer and Charles E. Low secretary.

ANDERSON, IND.—Rotary Air Pump Co., 216 East Ninth street, manufacturer of oil pumps, has completed arrangements for establishing and equipping a plant.

ARGUS, IND.—Argos Foundry Co. Inc. has been incorporated with 500 shares common stock no par value to manufacture iron, brass and other metal castings by John H. Miller, Mathilda Miller and George J. Miller.

COLUMBUS, IND.—Cummins Engine Co., Jackson and Dix streets, will start construction at once on the first unit of its plant, 50 x 150 feet, to be followed by the second, 125 x 290 feet.

EVANSVILLE. IND.—Holsclaw Bros. Inc. has been incorporated with $50,000 capital to manufacture dies, tools and patterns and general manufacturing.

EVANSVILLE, IND.—Johann Mfg. Co., recently incorporated with $250,000 capital, manufacturer of commercial auto truck bodies, will build a 1-story plant 100 x 100 feet. William Johann is president.

FORT WAYNE, IND.—General Electric Co., C. H. Matson construction superintendent, 1635 Broadway, will build a 1-story sawtooth foundry 81 x 121 feet. General contract to Buesching-Hagerman & Co., 4012 Superior street.

INDIANAPOLIS, IND.—Holt Tool & Engineering Co., 814 East Washington street, Charles D. Hoyt president, will build a 1-story plant 42 x 90 feet for the production of screw machines and parts.

SOUTH BEND, IND.—Studebaker Corp., Main and Bronson streets, is building a 1-story spring factory 124 x 380 feet.

SOUTH BEND, IND.—South Bend Softener Co. has been incorporated with 1000 shares no par value to manufacture water softening and filtering equipment by Paul L. Wynhausen, John W. Toyne and Ada Narwold.

TERRE HAUTE, IND.—Indiana Coke & Gas Co., W. I. Blauvelt president, Rose Dispensary building, has let general contract to Koppers Construction Co., Union Trust build-

ing, Pittsburgh, for an ammonium sulphate plant.

CEDAR RAPIDS, IOWA—Mack International Truck Co., contemplates building distributing plant here at cost of $250,000.

DAVENPORT, IOWA—Central States Power & Light Corp., will improve power plant and erect lines at cost of $1,000,000.

IOWA CITY, IOWA—Fisher Governor Co., J. Fige manager, is having plans made for a 1-story machine shop 50 x 60 feet. H. E. Reimer, Kibbey building, is architect.

IOWA CITY, IOWA—Bids will be received by W. H. Gemmill, secretary of state board of education, Des Moines, until Feb. 2, for reinforced concrete and fireproof boiler house at Iowa university at Iowa City.

MARSHALLTOWN, IOWA—Fisher Governor Co. will build a 1-story 60x60-foot addition to power plant and building for testing, south of factory group, to cost $30,000.

WATERLOO, IOWA—Waterloo Metal & Mfg. Co. has been incorporated with a capital of $25,000 by Julius Roeder and A. A. Roeder.

BALTIMORE, MD.—T. B. F. Corp., 927 Linden avenue, has been incorporated to manufacture tools by John H. Trimble and associates.

BOSTON—Pneumatic Scale Corp., Norfolk Downs, N. S. Ross, purchasing agent, 65 Newport avenue, Quincy, Mass., will build a 3-story addition to its plant.

WORCESTER, MASS.—Hamblin & Russell Mfg. Co., Water street, manufacturer of wire goods and hardware specialties, will rebuild the portion of its plant recently burned.

DETROIT—Detroit City Gas Co., Bagley and Clifford avenues, will build a 3-story garage and service station 160 x 198 feet.

DETROIT—Dearborn Iron & Steel Co. has been incorporated with $15,000 capital by Henry Carnick, 2665 Cortland avenue, Morris Berkowitz and Isador Berkowitz.

DETROIT—National Stamping Co. has been incorporated with $25,000 capital to do general plating, stamping and machinery business by A. R. Schneider, 49 Rhode Island avenue, Highland Park. J. E. Morrison, Grosse Points and Benjamin Philson, Detroit.

NEWAYGO, MICH.—Cement Transit Co. has been incorporated with 5000 shares no par value to manufacture cement by Segel W. Judd, 1004 Michigan Trust building, N. B. Kelly and Edward C. McCobb, Grand Rapids. ....PARIS, MICH.—Muskegon Light & Power Co. will build 30-foot dam and power plant on Muskegon river near Paris to produce 4500 kilowatt.

ROCHESTER, MICH.—Oakland Stamping Machine Co., E. S. Stryker president, will build a 1-story addition.

BLUE EARTH, MINN.—Blue Earth Canning Co., George Smith, manager, will take bids about Feb. 1, for canning factory 1-story 75x175, cost $100,000. Tapager Construction Co., Home Investment Building, Albert Lea, is the architect and engineer.

DULUTH, MINN.—Crushing plant of Zenith Furnace Co., West Duluth, was destroyed by fire Jan. 17.

FRAZEE, MINN.—Otter Tail Power Co., Fergus Falls, will build power house at Frazee Dam, cost $15,000.

MINNEAPOLIS, MINN.—Bruce Mfg. Co. Inc. has been incorporated with a capital stock of $50,000 by Geo. W. Bruce to manufacture machinery.

MINNEAPOLIS, MINN.—Bids will soon be taken on Cedar avenue bridge over Mississippi river 2800 feet long of reinforced concrete construction and three arch spans at cost of $1,100,000.

MINNEAPOLIS, MINN.—Minneapolis & St. Louis railroad, Wm. H. Bremmer, receiver, 317 Second avenue S, Minneapolis, will take bids about April 1, for about 25 miles of 85-pound rails to be laid on points between

Industrial Business Changes

GILLE Mfg. Co., Kansas City, Mo., H. S. Gille Sr., president, manufacturer of stoves and stove and furnace supplies, has bought part of the plant of the Smith & Sons Mfg. Co., 1500 Guinotte avenue, a 6-story building 84 x 120 feet, and several smaller structures, and will occupy it as its plant, to obtain larger space.

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Wagner Electric Corp., St. Louis has removed its office at Omaha, Nebr., to 2566 Leavenworth street.

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Jiffy Specialties, New York, has changed its name to Steel Back Specialties Corp.

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Trout Mining Co., owner of active manganese dioxide mines near Phillipsburg, Montana, has been bought by the Manhattan Electrical Supply Co., New York.

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Ben Sibbitt Iron & Foundry Co., Wichita, Kans., will establish a branch plant and warehouse at Lubbock, Tex., in charge of George Draut as state manager.

* * *

M. P. Moller Motor Car Co., Hagerstown, Md., has been incorporated to take over the business conducted by M. P. Moller under the same firm style. No other change is made in the company.

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Audriffen Refrigerating Machine Co., New York, has removed its general offices to the new Murray Hill building, 285 Madison avenue.

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The Willey Co., Columbia, Pa., and the Ellis Drier Co., Chicago, manufacturers of laundry equipment, have been consolidated under the name of the Willey-Ellis Co.

* * *

North American Car Co., Chicago, has changed its name to the Coffeyville Car Co. Mayer, Meyer, Austrial & Platt, 208 South La-Salle street, Chicago, are the company's attorneys.

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Strom division of the Marlin-Rockwell Corp. has moved its Philadelphia offices to 1211 Franklin Trust building, Fifteenth and Chestnut streets. A. W. Weise will continue in charge.

* * *

Brunnquell Iron Works Inc., Hoboken, N. J., has taken over the business of the George J. Brunnquell Iron Works, 122 Monroe street. The company fabricates iron and steel ornamental work and plate construction. George J. Brunnquell is president and Frederick H. Holtermann is secretary and treasurer.

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Pfeiffer-Wadelton Co., 114 Liberty street, New York, has been organized by Charles Pfeiffer and Henry B. Wadelton, formerly with Debevoise-Anderson Co. Inc., New York, to conduct a scrap metal business.

* * *

Heuler Wire & Iron Works, 2906 East Eighteenth street, Kansas City, Mo., has been incorporated to take over the business formerly conducted as a partnership under the style of Industrial Wire & Iron Works. C. A. Heuler is president, R. C. Heuler, vice president, and H. H. Heuler, secretary and treasurer.

* * *

To identify it more closely with the territory it chiefly serves the Midland Coke & Iron Corp., operating a coke oven and blast furnace plant at Granite City, Ill., has changed its name to the St. Louis Coke & Iron Corp. Prior to last Nov. 11 the Midland corporation was known as the St. Louis Coke & Iron Co. There is no change in officials and general offices remain at 208 South La Salle street, Chicago.

Minneapolis and Peoria, Ill. R. G. Kenly, is chief engineer.

MINNEAPOLIS, MINN.—Grant Storage Battery Co., 116 North Second street, has awarded contracts to Crown Iron Works Co., 1229 Tyler street NE, for reinforcing steel, and to American Bridge Co., 629 SE Second street, for structural steel in factory building at 222 Second street N. James A. Burner, 4505 Washburn avenue S, is the architect.

MONTGOMERY, MINN.—Montgomery Canning Co. has awarded general contract to J. B. Nelson Construction Co., Mankato, and power plant equipment to Fuel Economy Engineering Co., 1019 Guardian Life building, St. Paul, for steel and concrete canning factory to cost $50,000. Bids will be taken about Feb. 10 on electric motors and steam pipe. Ralph W. Richardson, 301 Zenith building, St. Paul, is the engineer.

NORTHFIELD, MINN.—Northfield Foundry & Machine Co. Inc. has been incorporated with a capital stock of $75,000 by Mike Machacek and Oliver Machacek to manufacture mechanical appliances.

ST. PAUL, MINN.—Gregg Mfg. Co. Inc. has been incorporated by Henry S. Gregg with a capital of $350,000 to manufacture tools and implements.

KANSAS CITY, MO.—Gille Mfg. Co., 1423 West Ninth street, is remodeling recently purchased plant into sheet metal and can shop.

KANSAS CITY, MO.—Kansas City Hay Press Co., Fourth street viaduct, will build a 1-story machine shop addition 70 x 180 feet.

KANSAS CITY, MO.—Central Pipe & Supply Co., Harry B. Strauss and Morton Brown, owners, 2036 Central avenue, has bought a site and will build a plant 50x150 feet.

KANSAS CITY, MO.—Kansas City Steel Corp. has been incorporated to manufacture steel and iron products by J. W. Dana, 1015 Commerce Trust building.

KANSAS CITY, MO.—J. Goldberg & Sons, 800 East Eighteenth street, is building a bar bending plant and craneway extension 50 x 75 feet with 300 feet additional runway.

ST. LOUIS—Ozark Tungsten Co., Boatmen's bank building, has been incorporated with $10,000 capital to mine tungsten and other ores and minerals by Walter L. Hensley, Edward C. O'Brien, George H. Moore, Boatmen's Bank building.

ST. LOUIS—Better & Ever Brake Co., 320 Liberty Central Trust building, has been incorporated with $2000 capital to manufacture brakes for sole cutting machines by Herman K. Bayer, Henry J. Epstein and A. Van Den Ende. George E. Egger, 320 Liberty Central Trust building, is attorney.

BOULDER, MONT.—General contract let to D. J. Lordan, Butte, for 42x82 industrial shop building to house machine shop, carpenter and paint shops, at cost of $15,000 for state board of control. Fred Brinkman, Kalispell, is the architect.

HAVRE, MONT.—C. B. Elwell and Chris Fuglevand will build 1-story 60x140 brick garage at Fourth avenue and Second street to cost $45,000.

BERLIN, N. J.—Franklin Oil Burner Corp. recently incorporated with $500,000 capital to manufacture oil burners, has bought a tract of 3½ acres at Berlin on which to build a plant. It has a plant at 69 Laurel street, Philadelphia.

CAMDEN, N. J.—Tunnel & Mine Machinery Co. has been incorporated with 1000 shares no par value by L. R. Hansel, I. C. Clow, John A. McPeak.

CAMDEN, N. J.—Standard Vacuum Brake Co. has been incorporated with $100,000 preferred stock and 6000 shares no par value by Emma D. Snyder, William R. Standery and R. Raymond Smith. Carr & Carroll, Camden, are attorneys.

JERSEY CITY, N. J.—McGraw Mfg. Co. has been incorporated with 1500 shares no par value to manufacture motors and machinery by John J. Flanigan, John I. Quinn and Anna M. Clancy.

JERSEY CITY, N. J.—Vimalert Co. Ltd., manufacturer of marine and airplane engines, has bought the plant of the James Craig Engine Works, 807 Garfield avenue, main plant 80x168 feet and second building 45x145 feet, which will be equipped for engine production.

MAURER, N. J.—The United Lead Co. will build a plant addition at this point.

NEWARK, N. J.—Essex Tool & Die Co. Inc. has been incorporated with $125,000 capital by Robert Hartman, West Orange; Roman Zipek and Louis A. Finkelstein, Newark.

NEWARK, N. J.—Newark Metal Coating & Litho Co. has been incorporated with $25,000 capital by George Lambert, Elizabeth, N. J.; Ruliff L. Hornby, Arlington, N. J.; Thomas H. Emhoff, Newark. Edward R. McGlynn, Newark, is attorney.

NEWARK, N. J.—Kell Mfg. Co. Inc. has been incorporated with $30,000 capital to manufacture tools and appliances by Jacob Kell, Joseph Ovsiovich, Newark, and Philip Grossman, Brooklyn, N. Y. Irving W. Reeple, Newark, is attorney.

NEW ROCHELLE, N. J.—New Rochelle Oil-O-Matic Burner Corp. has been incorporated with $10,000 capital by J. R. Hewitt, P. H. Cogan and L. M. McQuillan. Fallon & Fallon, New Rochelle, are attorneys.

PLAINFIELD, N. J.—John S. Haskard & Sons, Inc., 314 McDowell street, has been incorporated with $100,000 capital to manufacture iron and metal products.

PLEASANTVILLE, N. J.—Bids were closed Feb. 2 on a manufacturing building for the Star Knitting Mills. Andrew J. Sauer & Co., Philadelphia, are the architects in charge.

TRENTON, N. J.—Kramer Auto Radiator Works, B. Kramer president, 246 Perry street, will build a 1-story plant 108 x 120 feet. R. A. Shuman, 202 West State street, is archi-

TRENTON, N. J.—Savage Appliance Corp. has been incorporated with $50,000 capital to manufacture electrical fixtures by Hudson J. Shreve, Thomas A. Brown, Timothy F. McGuire, and Walter L. Tiddall.

BROOKLYN, N. Y.—Progressive Brass Foundry has been organized to operate a foundry at 3 Ainslie street by Vincent Consoli, 85 Montrose street; Joseph Ingegnere, 171 Rutledge street; Anthony Sangirgio, 85 Montrose avenue.

BUFFALO, N. Y.—Atlas Safety Brake Co. has been incorporated with $200,000 capital by E. C. Norton, L. M. Norton and C. J. Kuhn. H. E. Collins, Buffalo, is attorney.

EAST AURORA, N. Y.—Ford Vending Machine Co., 605 Oakwood avenue, Ford Mason treasurer, will build a 2-story plant at Lockport, N. Y., for the manufacture of machines and parts.

FREEPORT, N. Y.—Matthews Equipment Corp. has been incorporated with $2000 capital to manufacture construction equipment by R. P. Domschke, C. H. Matthews and A. Sigmond. Johnson & Johnson, Freeport, are attorneys.

JAMESTOWN, N. Y.—Art Metal Construction Co., Gifford and Jones streets, manufacturer of metal furniture, will build a 3-story addition 50 x 115 feet. Henry K. Smith is president.

NEW YORK—United Wrought Iron Studios has been incorporated with $15,000 capital by J. Jacobson, M. Jacobson and Y. Jacobson,

NEW YORK—Variety Tool & Metal Stamping Co. has been incorporated with $10,000 capital by M. Yadven, H. Gordon and A. Balter. B. Shepard, 1540 Broadway, is attorney.

NEW YORK—Chevrolet Motor Co., Broadway and Fifty-seventh street, will build a 2-story service and repair plant 100x200 feet at 544 West Fifty-sixth street.

NEW YORK—Cynosure Projecting Machine Co. has been incorporated with $10,000 capital by P. May, P. Ludwig and E. F. Dooley. A. E. Hinrichs, 140 Liberty street, is attorney.

NEW YORK—African Metals Corp. has been incorporated with $25,000 capital by E. Rommel, L. Hirschler and G. F. Creveling. F. W. Nellis, 135 Broadway, is attorney.

NEW YORK—Time Lite Clock Corp. has been incorporated with $100,000 capital by J. Lowenthal, B. Guntmacher and S. R. Hassan. L. Ward, 111 Broadway, is attorney.

NEW YORK—Williams Iron Works has been incorporated with $40,000 capital by J. Lowery, E. Muldoon and M. Curran. F. J. Waldeyer, 141 Broadway, is attorney.

NEW YORK—Banner Metal Products Co. has been incorporated with $20,000 capital by R. H. Goldstein, H. Goldstein and I. Cohen. M. Spalter, 305 Broadway, is attorney.

NEW YORK—Comet Lighting Fixture Mfg. Co. has been incorporated with $10,000 capital by H. Rosenfeld, S. R. Alterman and E. Feinberg. M. Seinfeld, 291 Broadway, is attorney.

NEW YORK—H. M. Metal Products Corp. has been incorporated with $10,000 capital by M. Halpert, E. Moshenberg and H. H. Freedman. J. Mithertz, 5 Beekman street, is attorney.

NEW YORK—Krusecon Linking Machine Co. has been incorporated with 2000 shares common no par value by F. Kruse, E. Kruse and H. Cohn. A. H. Rosenfeld, 55 John street, is attorney.

NEW YORK—Harris Schoonover Co. has been incorporated with $10,000 capital to conduct an iron and steel business by M. I. Harris, R. E. Schoonover and A. Blumensteil. Blumensteil & Blumensteil, 100 Broadway, are attorneys.

NEW YORK CITY—Property has been purchased in the Bronx by F. A. D. Andrea Inc., for the manufacture of radio apparatus. The site covers the entire block on the west side of 138th street, between Mott and Walton avenues. The building will be four stories high, of reinforced concrete construction and, including the land, will cost $750,000. With equipment, the project will represent an investment of approximately $1,000,000. The new plant will combine the four units now located at and near the main division of the company at 1581 Jerome avenue.

CHARLOTTE, N. C.—Keystone Pipe & Machinery Co. has been incorporated with $50,000 capital by P. B. Eaton and Felix Pflaum.

STANLEY, N. D.—Contract will soon be let for bridge over Missouri river at Sanish with four steel spans each 276 feet long, to cost $450,000.

YANKTOWN, S. D.—Missouri River Navigation Association contemplates wharf and

(*Concluded on Page* 384)

MANY operating and managing executives have neither the time nor the facilities for study of design and equipment, nor for organization and execution of construction. Neither have such executives time or facilities to undertake studies to determine possibilities of plant rearrangement and reequipment to improve practice and costs.

In selecting consulting services, certain points should be determined:

1. What is the character and reputation of the firm.
2. What is their record for carrying through work accurately, economically and expeditiously.
3. What is their experience as to merits of plant design, layout, equipment, construction and practice.
4. Are they conversant with modern and up-to-date progress in their field, and with operating practice and costs.
5. What is the experience and record of their organization in conservative and constructive advice, and in carefully built and successful plants.

FREYN ENGINEERING COMPANY

310 South Michigan Avenue

CHICAGO

invites your inquiry into its organization, facilities and record should you require consulting engineering service in construction, design, investigations and reports.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount of $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	33	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

TREADS AND COUPLINGS

Butt weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon	application
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾ to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
½-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{5}{16}$-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 Inches Wide

Plates less than ¼-inch gage, to and including $\frac{5}{16}$ inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Chekered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

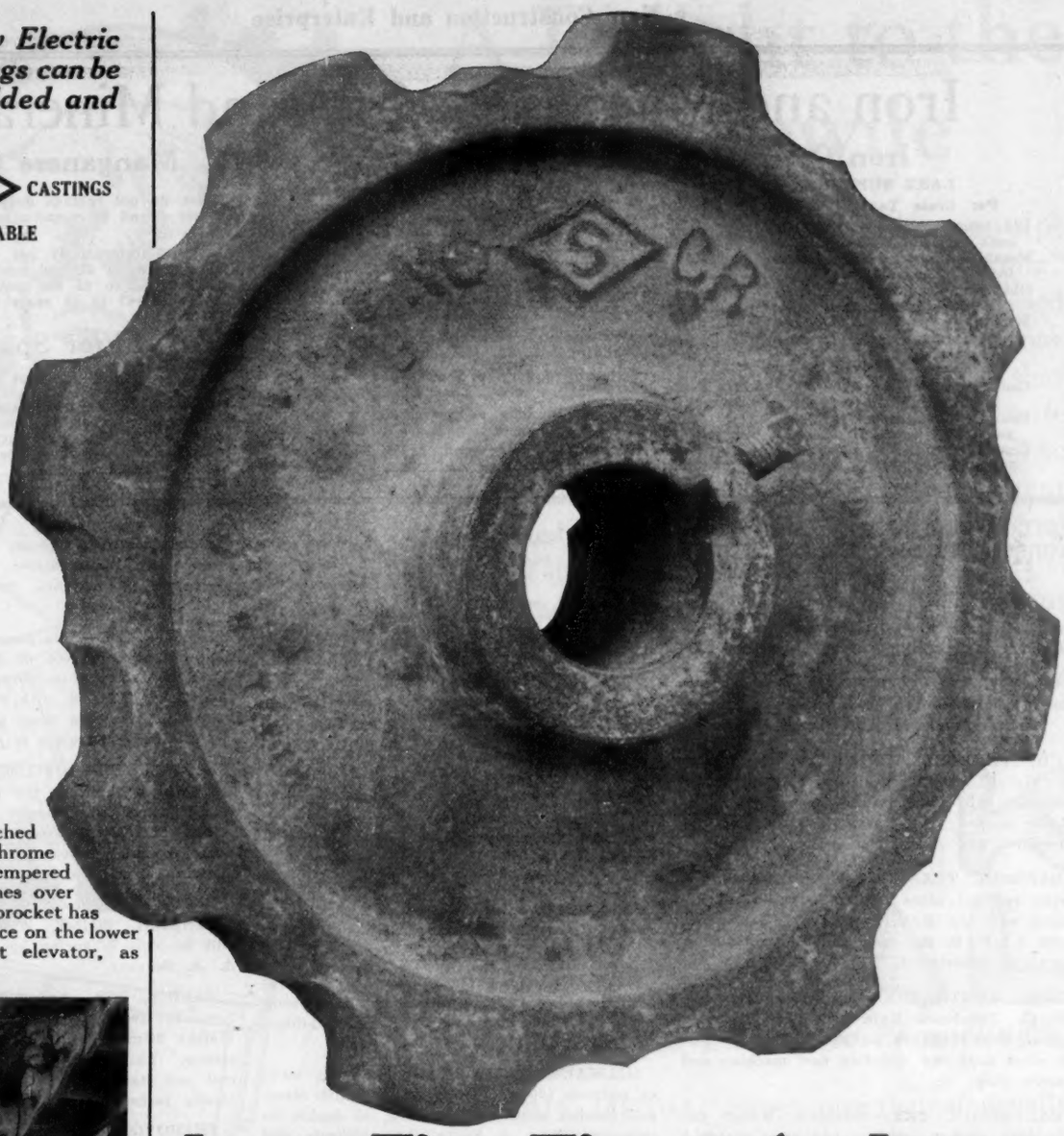
Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c

Sivyer Alloy Electric Steel Castings can be forged, welded and tempered.

SIVYER S CASTINGS
DEPENDABLE



Above is an unretouched picture of a Sivyer Chrome Nickel Alloy Steel, tempered sprocket—16¼ inches over all diameter. This sprocket has seen 6 months service on the lower end of the bucket elevator, as shown below.

Lasts Five Times As Long When Cast in Sivyer Alloy

This sprocket handles the lower end of a bucket elevator and operates in a pit. Sand and gravel often cover it completely. A chilled cast iron sprocket and one of ordinary steel wore out in from three to six weeks. Then Sivyer was asked to make one — in Sivyer Chrome Nickel Alloy Steel, tempered. It is shown above. *It has been through six months of grueling service—and is still in good condition.*

SIVYER STEEL

SIVYER STEEL CASTING COMPANY, MILWAUKEE

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 58 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.00 to 10.00
Algerian low phosphorus, 52 to 54 per cent	9.75 to 10.00
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.50
Algerian foundry and basic, 50 to 54 per cent	8.50 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent.....nominal
Indian minimum 47 per cent.....nominal
Caucasian, 53 to 55 per cent.....
....Washed, 41 to 43 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$17.50
Washed gravel, imported duty paid eastern tidewater, per net ton	17.50 to 18.00

Construction and Enterprise

(*Concluded from Page* 380)

dock facilities when freight service is established on Mississippi river this summer.

CHATTANOOGA, TENN.—Chattanooga Implement & Mfg. Co., E. H. Sholar president, is planning an additional 1-story unit.

CHATTANOOGA, TENN.—Simplicity System Co., L. B. West president, 1105 Volunteer building, will build a 1-story plant with 25,000 square feet floor, including cranes, structural and sheet shops.

DENISON, TEX.—The Missouri, Kansas & Texas railroad plans laying 100 miles of 90-pound rails on Red River-Durant line about April 1. H. E. McGee is general manager of operatnig department.

FORT WORTH, TEX.—Southwestern Steel & Iron Co., 708 North Main street, has increased capital from $100,000 to $200,000 to provide for plant additions including new machine and pattern shop.

GALVESTON, TEX.—Galveston Wharf Co. will erect modern concrete and steel terminal costing $1,100,000 to replace structure recently burned. New terminal will be combined freight and passenger. Bids will be asked shortly.

SAN ANTONIO, TEX.—R. Borge, 1320 North Alamo street, is building a 2-story office and shop building 42 x 116 feet. General contract to John Westerhoff, 524 School street.

SEATTLE—Wilson Machine Works, manufacturer of marine oil engines, has opened a new plant on Elliott avenue.

SEATTLE—Federal Pipe & Tank Co., 5332 Twenty-fourth avenue, is planning a 2-story addition 40 x 50 feet.

SEATTLE—Best Universal Lock Co., 1121 Post street, has bought a tract of five acres and will build a factory group from plans by John Graham, Dexter Horton building.

SEATTLE—Northwest Steel & Metal Products Co. has let a contract to the Austin Co. for a steel mill building at 4301 Ninth avenue Northwest.

SEATTLE—Western Industries Co. has been incorporated with $198,000 capital to mine and smelt ores and metals by P. H. Holdsworth, Prefontaine building.

SEATTLE—Pacific Coast Forge Co., 3800 Iowa street, manufacturer of spikes and bolts, will build four 1-story additions, 60 x 120 feet, 30 x 60 feet, 50 x 175 feet and 35 x 75 feet. The Austin Co., Cleveland, has the general contract.

TACOMA, WASH.—Terminal Sheet Metal Works has been incorporated with $20,000 capital by R. D. Tilmont and G. L. Ziegler.

WALLA WALLA, WASH.—Washington Lead Co. has been organized with $30,000 capital by H. L. Wilson, 26 Jaycox building, contracting engineer.

VADER, WASH.—Beacon Electric Mfg. Co. has been incorporated with $25,000 capital by E. K. M. Bordsen and A. H. Booth, to manufacture machinery and appliances.

MILWAUKEE—The Hummel Motor Car Co., 2502 North avenue, will build a brick and concrete garage and repairshop addition, 50x 60 feet.

MILWAUKEE—Contracts have been let by the Milwaukee Flush Valve Co., 121 Reservoir avenue, for a 2-story manufacturing addition, 40x52 feet.

MILWAUKEE—Wehr Steel Co. will build an addition 160 x 200 feet at Forty-fifth street and Gordon avenue, West Allis, to double its capacity. Klug & Smith are architects and engineers.

MILWAUKEE—Meta-Mold Aluminum Co. has been incorporated with $100,000 capital to manufacture aluminum goods and articles by W. D. Bliss president, Redmond P. Bliss vice president of Bliss Bros. Tool Co., Milwaukee.

MILWAUKEE—Enlargement of North Point pumping station, foot of North avenue, will be started shortly, including bolier-room addition 70 x 167 feet with two wings each 40 x 90 feet, machine shop, pipe room, chlorine room. Joseph Schwada is city engineer.

MILWAUKEE—A $75,000 addition, 100x150 feet, will be built to the private garage and repairshop of Ed. Schuster & Co., department stores, at 772-780 Fourth street. Architects Brust & Philipp, 405 Broadway, have let the general contract to Theo. Stark & Co., 130 Muskego avenue.

MINERAL POINT, WIS.—Canning factory will be built in spring by W. H. Correll and A. A. Schnurr.

RACINE, WIS.—A foundry addition, 90x120 feet, 24 feet high, will be built by the Walker Mfg. Co., at Hamilton and Michigan streets. The company manufactures a line of cast and stamped automobile accessories, principally jacks.

SHEBOYGAN, WIS.—The Dillingham Mfg. Co., South Water and Wisconsin avenue, will build a 2-story addition, 70x160 feet, to its factory, manufacturing furniture, household refrigerators, etc.

SHEBOYGAN, WIS.—The Immel Construction Co., Fond du Lac, Wis., has been awarded the general contract to erect a new garage and repairshop, 50x136 feet, for the Robert H. Thieman Co., 816 Niagara avenue, Ford dealer.

SPOONER, WIS.—Wisconsin Hydro-Electric Co., Amery, will build power plant and dam across Namekagon river 10 miles north of Spooner at a cost of $350,000.

WAUKESHA, WIS.—Highway Machinery Co. has been incorporated with a capital of $20,000 by A. B. Hicken, 800 East Broadway, to manufacture highway machinery.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 45.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	43.00 to 46.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	45.00 to 48.00

Business in Canada

FORT ALEXANDER, MAN. — Manitoba Pulp & Paper Co. Ltd. has awarded contracts to the Dominion Bridge Co. for steelwork on its new mill here on which construction will be started March 1.

ST. BONIFACE, MAN.—Western Steel Products Ltd. is building an addition to cost $30,000.

A Delight to the Housewife

—is Vitreous Enameled kitchen equipment. Everything is so easy to keep "sparkling" clean. Manufacturers of vitreous enameled products realize the great importance of fine finish in making sales,—but it is the life of that finish which determines whether the housewife is going to be a knocker or a booster. The permanence of enamel can be to a large extent governed by the character of the basic material —steel sheets. Use "WABIK METAL" Sheets! They are especially constructed for vitreous enameling. The finish is remarkably smooth, yet porous enough to provide a super-grip for the enamel.

WABIK METAL

"The Base for Distinctive Enameling"

"WABIK METAL" Sheets owe their unusually high character to the fact that they are rolled from metal which is scientifically treated in the open hearth furnace and which is poured by the Mansfield distinctive method. Mansfield ingots are low in sulphur and free from "pipes", seams, etc. "WABIK METAL" Sheets are used extensively for Stove Door Panels, Splasher Backs, Broiler Pans, Table Tops, Refrigerator Linings, Signs and all other flat work that calls for attractive and durable Vitreous Enameling.

Mansfield Sheet & Tin Plate Company

Mansfield, Ohio

District Sales Offices:

12-237 General Motors Bldg., Detroit, Mich.
1372 Wrigley Bldg., Chicago, Ill.
410 Pierce Bldg., St. Louis, Mo.
1106 National City Bldg., New York, N. Y.
2002 Union Trust Bldg., Cleveland, Ohio
1504 West Venango Street, Philadelphia, Pa.

ContributingMember
SHEET STEEL
TRADE EXTENSION COMMITTEE

District Sales Offices:

1403 Merchants Bank Bldg., Indianapolis, Ind.
1020 Union Trust Bldg., Cincinnati, Ohio
640 Endicott Bldg., St. Paul, Minn.
237 Rialto Bldg., San Francisco, Calif.
509 Wilcox Bldg., Los Angeles, Calif.
1426 L. C. Smith Bldg., Seattle, Wash.

"Where-To-Buy"

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